WESTERN INDUSTRY

• *Giant lathes like this peel the veneer used in the making of fir plywood on the West Coast. For details see page 5.*

OCTOBER
950 VOLUME XV
NUMBER 10

There's more to a Wirebound box than wood, wire and price!

Experience, adequate plant facilities and container know-how are essential to soundly engineered, dependable containers. Cabco has been making wooden containers since 1883. Facilities embrace everything from logging to the finished wirebound. Cabco is the West's recognized leader in designing, developing and supplying wooden shipping containers.

New Cabco Wirebound cuts shipping weight 55 lbs. for California furnace manufacturer

Kresky Mfg. Co., Inc. now ships its large wall-type Oil Burner Furnace in a Cabco wirebound crate weighing but 55 pounds. Formerly, shipments were made in a nailed crate that required 60 board feet of lumber, weighed 110 pounds empty. Besides important savings in freight, Kresky finds their new Cabco wirebounds cut container purchase costs 50%, save appreciably on assembly and packing time and economize on warehouse space. *Perhaps now is the time to let Cabco engineers examine your shipping container problems.*

Special open-type Cabco wirebound crate folds quickly around Kresky Oil Furnace in 6 minutes, guards against damage, permits easy identification of equipment.

3136

CABCO CONTAINERS

A product of the California Barrel Company, Ltd.

Sold only through

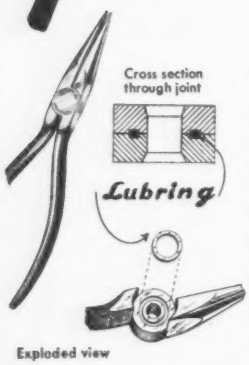
DUFF CALIFORNIA CO.

100 Bush Street, San Francisco 4, California
2581 E. Eighth Street, Los Angeles 23, California
501 Dooley Building, Salt Lake City 1, Utah

NEWS FROM UTICA

Pioneering and improvements it will pay you to know about

1 PLIERS WITH BUILT-IN LUBRICATION . .

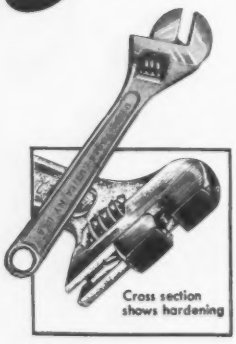


The finest pliers—the LUBRING line—have a ring of oil-impregnated porous iron floating in the joint. The ring slowly feeds lubrication and assures smooth action, long life. Standard equipment for several top utilities.

2 NEW SAFETY AND COMFORT IN SPECIAL HANDLES

Heavy rubber vulcanized handles for insulation—slip-on plastic handles that are non-burning, non-explosive—dipped plastic handles for comfort—handle springs for ease in use. For almost all UTICA tools.

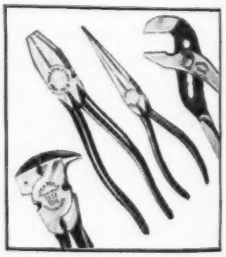
3 WRENCHES THAT LAST TEN TIMES AS LONG . .



Adjustable wrenches with electronically hardened jaw *surfaces*. Resist burring and nicking. Last up to 10 times as long. Their thin pattern was designed to reach the hard-to-get-at places—with *plenty* of strength!

4 80 TOOLS . . 151 SIZES. THE RIGHT TOOL FOR YOUR NEED

You get *exactly* what you want from UTICA! A full line of pliers and adjustable wrenches. Every tool checked in every step of manufacture, and *tested*. For long-run economy in your production line.



Utica Drop Forge & Tool Corporation, Utica 4, N. Y.

BETTER PLIERS FOR EVERY PURPOSE

It pays to use U TI CA quality tools

AND THE WORLD'S BEST TOOLS ARE MADE IN U. S. A.

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This Month in WESTERN INDUSTRY

VOLUME XV OCTOBER · 1950 NUMBER 10

Front Cover

Enough panels to build a small all-plywood house can be made from three 8-foot "peeler blocks" each 50 inches in diameter. Just rotate the fir block against a keen-cutting blade and a ribbon of wood from 1/10 to 3/16 inches thick is shaved off. Picture from Puget Sound Plywood, Inc., Tacoma, Wash.

STANDARD ENGINEER'S REPORT

DATA

LUBRICANT: Calol O.C. Turbine Oil

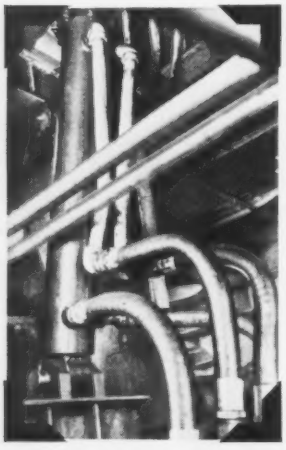
APPLICATION: Hydraulic Medium

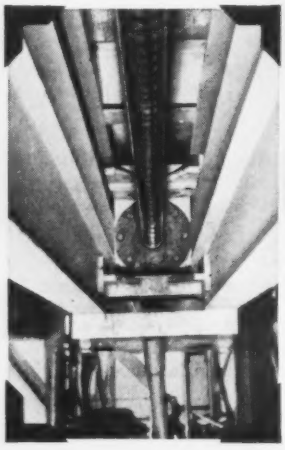
UNIT: Hydraulically-operated sawmill 70,000 bd. ft. per day capacity

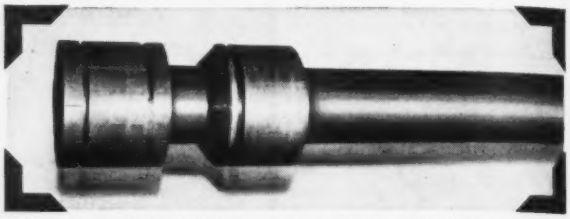
CONDITIONS: Extreme temp. and pressures—cyl. + rods exposed to moisture

FIRM: Ivory Pine Co. of Calif., Dinuba, Calif.

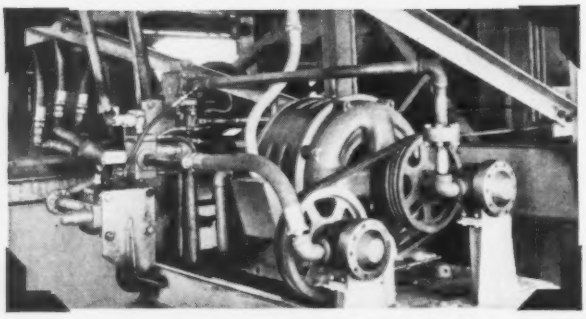
Inhibited oil stops thickening and foaming trouble







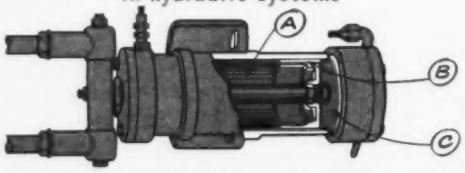
CALOL O.C. TURBINE OIL, AS HYDRAULIC MEDIUM in these cylinders, pistons, pumps, etc., operating feed works and other units of Ivory Pine Company's hydraulically-powered sawmill, has prevented any rusting, deposit formation, and leaks caused by foaming, since the mill started. Ordinary oil in similar units knocked out three pumps, lost 175,000 feet production. Note shiny, unrusted surface, and oil on 16' piston rod (left). When photographed, it had been idle in damp, foggy weather for three months!



"IN ALL SIX OF OUR HYDRAULIC SYSTEMS, CALOL O.C. Turbine Oil has eliminated oil foaming and 'jelling' trouble," says Mr. E. P. Ivory, president of the company. "And we've found no rust, even on our lift cylinder at the surface of the log pond."

REMARKS: Developed and built by The Peters Co., Portland, Ore., this new type sawmill is the most complete of its kind. Its logs, cut from a U. S. Forest Service Sustained Yield Unit, are hauled 50 miles to the mill during the summer so it can operate the year around.

How CALOL O.C. Turbine Oil cuts costs in hydraulic systems



Used as the hydraulic medium in feeds and lifts of any kind, CALOL O.C. Turbine Oil will not form carbon or foam excessively.

A. Contains very effective oxidation inhibitor—will not deteriorate and plug lines and retard action of cylinders.

B. Corrosion inhibitor prevents rusting and pitting—has high metal-wetting ability.

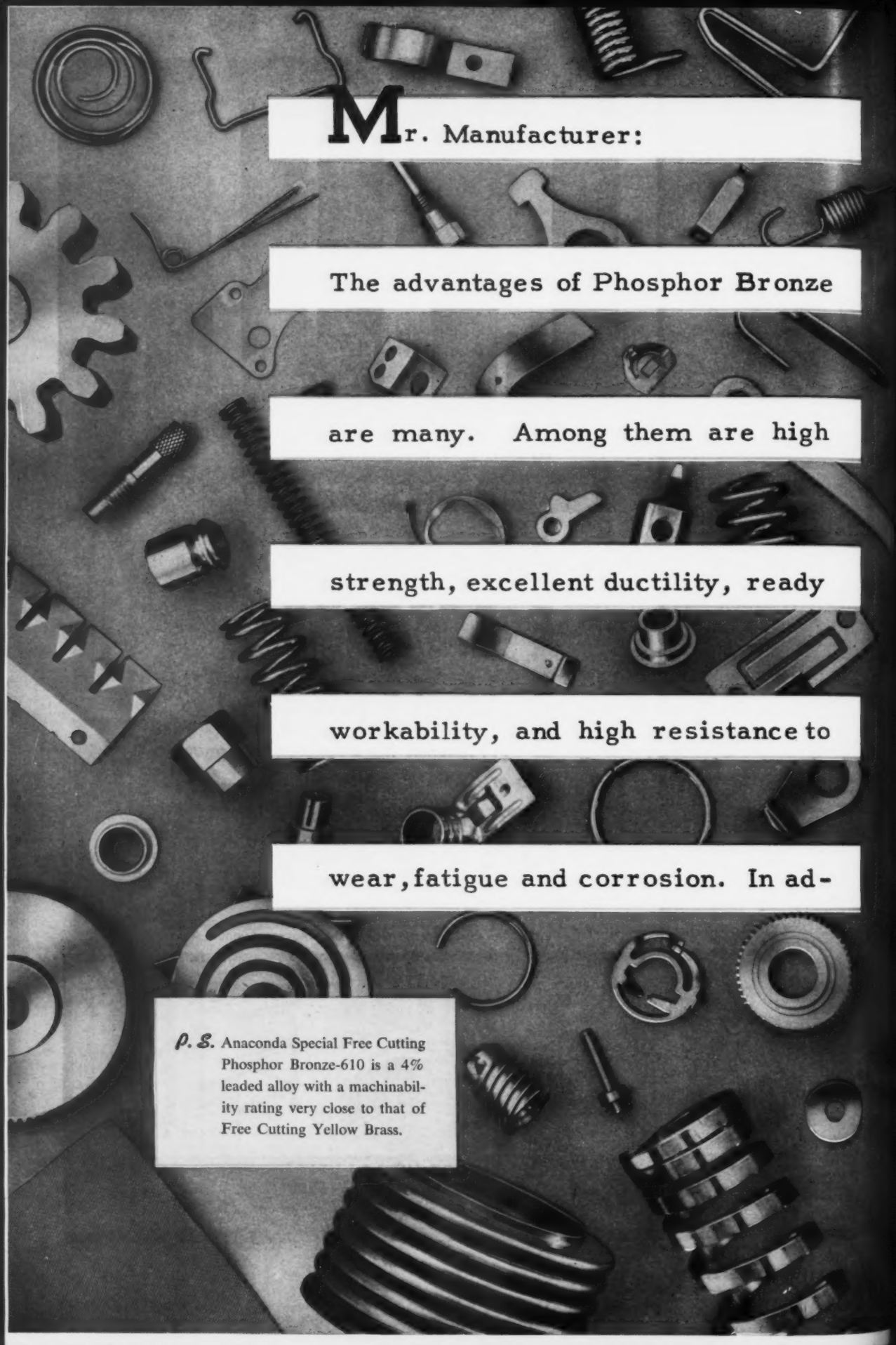
C. Separates readily from water or other contaminants—dirty oil may be reclaimed easily...charge lasts indefinitely, leakage only cause for replacement.

STANDARD TECHNICAL SERVICE checked this product performance. If you have a lubrication or fuel problem your Standard Fuel and Lubricant Engineer or Representative will give you expert help; or write Standard of California, 225 Bush St., San Francisco.

CALOL

TRADEMARK "CALOL" REG. U.S. PAT. OFF

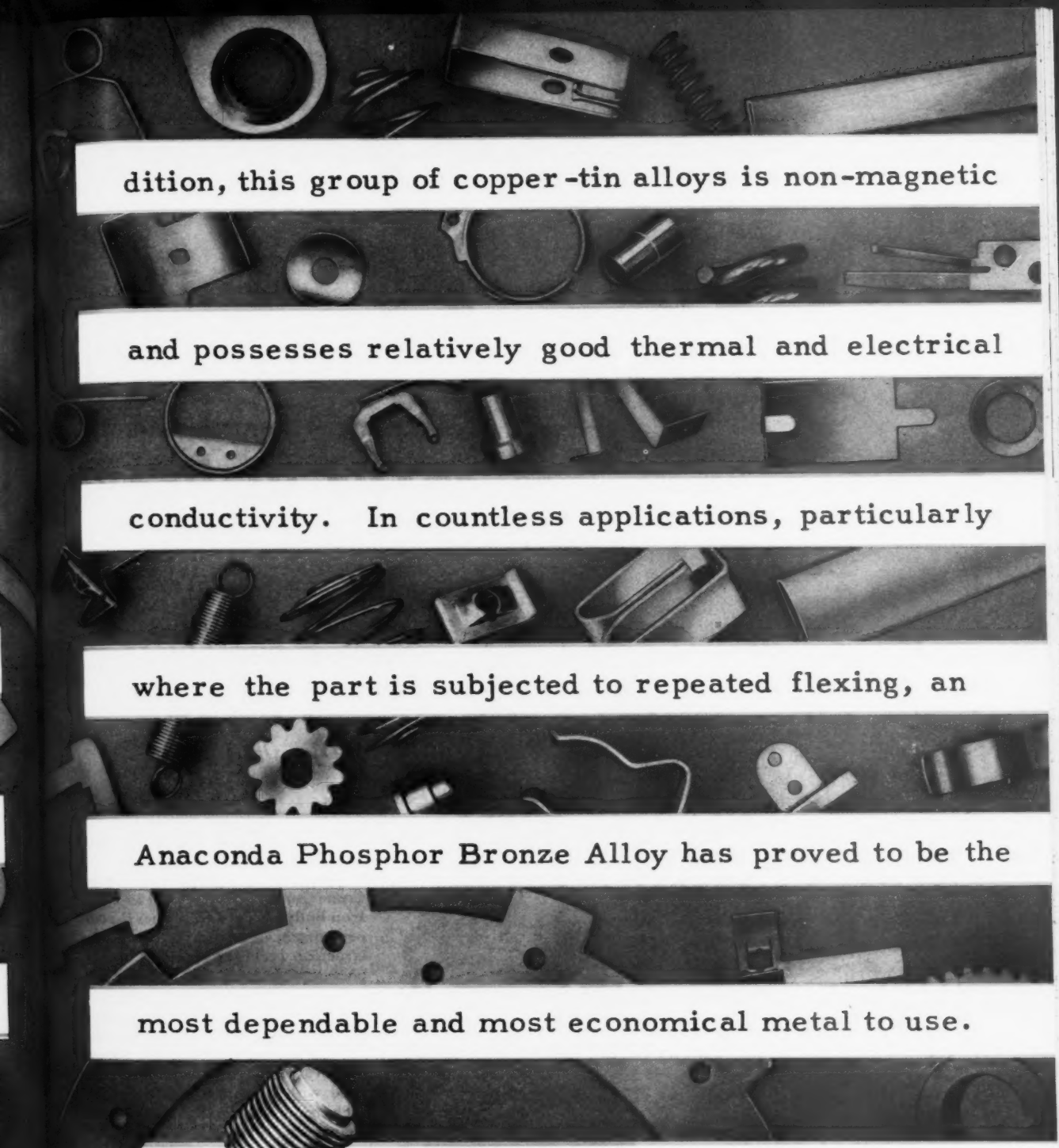
STANDARD OIL COMPANY OF CALIFORNIA



Mr. Manufacturer:

The advantages of Phosphor Bronze are many. Among them are high strength, excellent ductility, ready workability, and high resistance to wear, fatigue and corrosion. In ad-

P. S. Anaconda Special Free Cutting Phosphor Bronze-610 is a 4% leaded alloy with a machinability rating very close to that of Free Cutting Yellow Brass.



dition, this group of copper-tin alloys is non-magnetic and possesses relatively good thermal and electrical conductivity. In countless applications, particularly where the part is subjected to repeated flexing, an Anaconda Phosphor Bronze Alloy has proved to be the most dependable and most economical metal to use.

THE AMERICAN BRASS COMPANY annually produces millions of pounds of Anaconda Phosphor Bronze in all the wrought alloys covered by A.S.T.M. Specifications.

Our Technical Department will be glad to cooperate in selecting a Phosphor Bronze alloy in the form and temper most suitable for your product and fabricating equipment. Address The American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.

ANACONDA

PHOSPHOR BRONZE

SHEETS · STRIPS · PLATES · WIRE · RODS · BARS · TUBES

49259

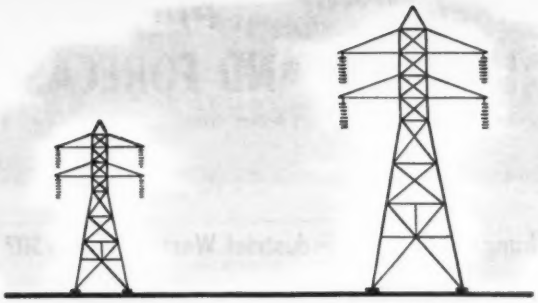
YOU CAN BE **SURE**.. IF IT'S

Westinghouse

MORE STEEL FOR THE WEST

Bedplate of industry is steel, and in ten years Western steel output has been boosted a fabulous 220%.

Expanding Western power and first-rate electrical equipment help make steel's growth possible. Take Kaiser Corporation's new merchant mill, above, which rolls angles, bars and shapes for Western industry. Virtually all the electrical equipment for this mill was supplied by Westinghouse, including eleven giant mill-drive motors totaling 8,200 hp, Ignitron rectifiers which feed huge blocks of d-c power to the drive motors, specially-designed motors and M-G sets for the run-out tables, and electrical control equipment for all apparatus. Co-ordinated into the ultimate in modern, efficient installations, this Westinghouse steel mill equipment helps Kaiser help the West grow.



1939—6½ billion kw 1949—11 billion kw

Why has Western power capacity jumped 72% since '39?

With a generating capacity well over the U. S. per-capita average, Westerners were in good shape power-wise in 1939. But this was just a starter. In the following ten years Western capacity jumped 72% and boosted its lead *still further* over the U. S. average!

What's created the need for the new Western power? The big reason: booming Western industry. Measured by manufacturing employees, an excellent yardstick, Western industry has grown 58% since 1939. *That's* the main reason for 4½ billion new kilowatts in Western capacity!

One of the key factors in this healthy picture is the Westinghouse organization. A big percentage of the apparatus producing the new Western power was designed, built and installed by Westinghouse. And at the same time, Westinghouse helps Western industry to get the most *out of* this power with topflight electrical-using equipment such as the steel mill drive equipment at left.

To better meet the needs of Western industry our own eight manufacturing plants in the West are expanding—and are themselves a part of the overall growth. As a Western supplier, manufacturer and customer we have a basic interest in building Western power and industry. And that makes your Westinghouse office a good place to go for help in getting the most out of power.

J-94834

Westinghouse

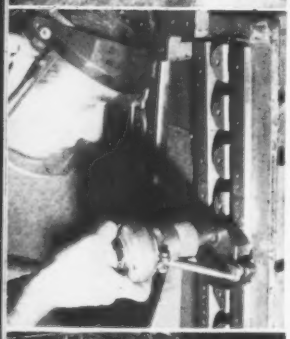
A MAJOR FORCE IN WESTERN GROWTH

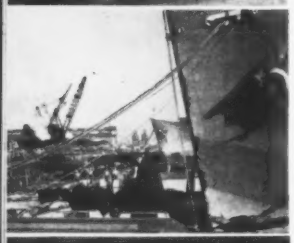
PLANTS AT BERKELEY, DENVER, EMERYVILLE, LOS ANGELES, PORTLAND, SALT LAKE CITY, SEATTLE, SUNNYVALE

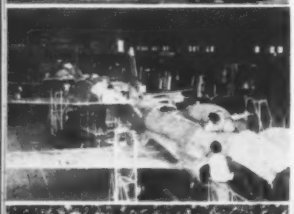
WESTERN INDUSTRY

Take a look NOW . . . Plan to be in our ANNUAL REVIEW AND FORECAST ISSUE

Out January 10. Final forms close December 10.







What has happended in the industrial West during 1950?

What is the outlook for 1951?

What effect will these developments have on Western production and marketing plans?

No one has all the answers, but WESTERN INDUSTRY's January ANNUAL REVIEW AND FORECAST certainly will provide some guide posts.

EXTRA ADVERTISING VALUE FOR YOU

If your products or services are used by industry in the West—then you belong in our January ANNUAL REVIEW AND FORECAST issue. It is firmly established and regarded as authoritative by the West's top management and production men. It is aimed at 9,000 men who actively *manage* and *buy* (specify and approve purchases) for Western plants. The issue will have permanent reference value—a bonus for all advertisers.

EDITORIAL PLANS

1 ***Industry-by-Industry Summaries and Trends***—Once again our editors will review the principal industries of the West. These reviews will present production figures; summarize significant manufacturing, processing and equipment developments of the year; forecast trends; on a State by State basis. Here are specific industries we expect to cover:

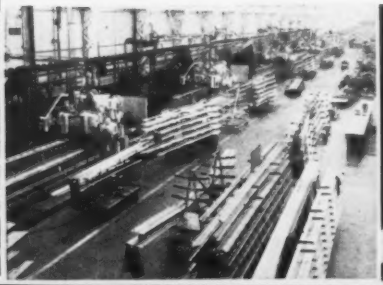
Metals	**Gas**	**Aircraft**	**Sugar**	**Plastics**
Iron and Steel	**Coal**	**Canning and Packing**	**Furniture**	**Automobile assembly**
Aluminum	**Electric Energy**	**Fruit and vegetable**	**Rubber**	**automobile parts**
Copper	**Lumber**	**Fish canning**	**Motion Pictures**	**Apparel**
Chemicals	**Plywood**	**Frozen foods**	**Electronics**	**Glass**
Petroleum	**Pulp and Paper**	**Flour**	**Ceramics**	**Cement**

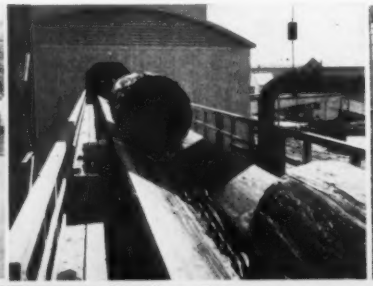
2 ***World Situation and the West***—Population and production capacity in the West gained tremendously during World War II. WESTERN INDUSTRY will cover that growth, and point out the industrial and economic developments likely to follow as a result of present world conditions.

3 ***Analysis of Western Production Facilities and Natural Resources.***

4 ***The Import of 1950 Census Figures for the West.***

5 ***Comments by Business Leaders***—What to look for in 1951, according to the views of top management in the West.





Start Your 1951 Advertising Schedule With Dominant Space in This Issue!

FAN MAIL

"Beyond and aside from your Annual Review and Forecast issue, my best wishes for continued success in the splendid work that your publication is doing for Western industry and business."
Walther Mathesius, President
Geneva Steel Corporation
United States Steel Corporation Subsidiary

"May I congratulate you on the excellence of WESTERN INDUSTRY. I could offer no suggestions for improving the caliber of your editorials, as to my knowledge they have always been constructive, varied, and of general interest."
Louis Buchman, General Manager
Utah Copper Division
Kennecott Copper Corporation

"Your January Annual Review and Forecast issue is an excellent resumé of the actuals and potentials of Western industry. I am circulating this issue to the vice-presidents in charge of our four major product divisions, so that they may see the opportunities that lie in the Western states."
J. P. Margeson, Jr., Executive Vice-President
International Minerals & Chemicals Corporation

"I have examined with great interest, the Annual Review and Forecast issue of WESTERN INDUSTY. There can be no question but the information and data presented in this number give striking evidence of the tremendous growth which is taking place in the West."
I. W. Wilson, Senior Vice-President
Aluminum Company of America

"I think your Review and Forecast Number is without question one of the most complete and comprehensive editions I have seen presenting information of interest to all industries. I assure you that we shall use your publication as a valuable guide and reference.
F. M. Hawley, President and General Manager
Morse Chain Company, Detroit

"Perhaps you would be interested in learning that we will be able to use information from this fine periodical for an editorial in a company magazine just being started, besides making us feel that we are "keeping our fingers" on what is happening in the eleven Western states."
C. E. Kuster, Terminal Manager
C-Transcon Lines, Los Angeles

"As an indication of the value we place upon your Annual Review and Forecast Number, I think you will be interested to know that we have ordered copies of the magazines for each of the resident managers of our mills and converting plants."
R. G. Shepherd, Executive Secretary to the President
Crown Zellerbach Corporation, San Francisco

"We have never been disappointed. Our Western business has grown with the West. For this reason we naturally were interested in your "Annual Review and Forecast" number. It convinces us once again that our faith in Western business is justified and our investment there is a good one. Your "Annual Review and Forecast" does a fine job of serving your readers."
Charles R. Tyson, President
John A. Roebling's Sons Company, Trenton

"Mr. Lawson and members of his staff rely on *Western Industry* to keep abreast of developments in their area, and from time to time refer special articles to New York."
P. P. Pratt, Assistant to Vice-President
Manufacturing and Engineering Department
General Foods Corporation

Plan your 1951 schedule to include *Western Industry's* 2 other special issues: March, Metals number; and August, Materials Handling and Packaging number.

FULL EFFECTIVE COVERAGE

Excerpts from letters to us about our 1950 Annual Review and Forecast give you an idea of the recognition it received . . . and we believe the 1951 issue will be even better.

No other magazine, Western or national, will cover so completely industry in the West. It will be packed with information that buyers in this fast-growing market want and need. So don't miss it. Tell your sales story to this important market by reserving space NOW for *Western Industry's* January ANNUAL REVIEW AND FORECAST issue.

For best position, state advertisement size, and whether color or bleed. Remember, forms close December 10.

NO INCREASE IN RATES

While the January number is sure to have extra interest for readers (and for you) our regular rates apply, as shown here:

ADVERTISING RATES

(Based On Total Bulk Space Used in 12 Months)

Full Page Space

24 pages or more	$185.00 per page
12 to 23 pages	200.00 per page
6 to 11 pages	225.00 per page
3 to 5 pages	240.00 per page
Less than 3 pages	255.00 per page

Fractional Space	1 time	6 time	12 time
2/3 page	$170.00	$160.00	$150.00
1/2 page	127.50	120.00	112.50
1/3 page	85.00	85.00	80.00
1/4 page	63.75	63.75	60.00
1/6 page	42.50	42.50	42.50
1/8 page	31.88	31.88	31.88

Color Charges	1 page	2 pages facing
Red, orange or yellow	$55.00	$80.00
Other colors	65.00	90.00
Metallic colors	70.00	95.00

Bleed Borders

Bleed top, bottom or outside	20% extra	15% extra
Gutter bleed	No charge	No charge

Inserts

Inserts billed at earned black and white page rate. No extra charge for backup either single leaf or spread (4-page form).

Composition—No charge.

Preferred Positions (Non-cancellable).

Page facing second cover	10% premium
Page facing contents page	20% premium
Page facing first editorial	20% premium
Page facing first reading	20% premium
Any guaranteed regular position (other than preferred)	10% premium

NOTE: Island ½-page positions (4⅝" x 7½") cost 20% extra.
Write for availability of cover positions and rates.

CASH IN ON THIS MARKET NOW!

To sell profitably to this market, and keep it sold, put WESTERN INDUSTRY on your national schedule NOW.

WESTERN INDUSTRY
609 Mission Street, San Francisco 5, California • YUkon 2-4343

DATA UNITS AVAILABLE

WI-1—NIAA Sales Presentation
WI-2—How to Determine Editorial Effectiveness
WI-3—Helpful ABC's for Exhibitors at Trade Shows, etc.
WI-4—The Industrial Market of the West
WI-6—Your Added Market in the West for the Next 10 Years
WI-7—1949 Editorial Index of Articles
WI-8—How to Make Your Product One of the 2.7 Considered by Each Buyer

NEW YORK—Franklin B. Lyons, Mgr.
Weston Road, Georgetown, Conn.
Telephone Georgetown 374

CLEVELAND—Richard C. Burns, Mgr.
7708 Deerfield Drive, Cleveland 29, Ohio
Telephone TUxedo 5-1848

CHICAGO—A. C. Petersen, Mgr.
3423 Prairie Ave., Brookfield, Ill.
Telephone Brookfield 532

SAN FRANCISCO—V. C. Dowdle, Mgr.
609 Mission St., San Francisco 5, Calif.
Telephone YUkon 2-4343

LOS ANGELES—J. E. Badgley, Mgr.
1228½ S. Bronson Ave.,
Los Angeles 6, Calif.
Telephone REpublic 2-3125

WESTERN INDUSTRY
609 Mission St., San Francisco 5, Calif.

Yes, I want

- ☐ **to reserve ..... pages in January, 1951 Annual Review and Forecast**
- ☐ **additional data on *Western Industry*, its circulation and editorial content; its market.**
- ☐ **a copy of 1950 Annual Review and Forecast issue.**

Name..... Title.....

Company.....

Street.....

City..... Zone..... State.....

Every HOT wire

The right cable for the job

costs you cold cash

It's 9 to 1 your wiring is overloaded!

IT'S TRUE! Actually 9 out of 10 plants, today, are suffering power loss and profit loss because of overloaded wiring.
Chances are it is happening to you!

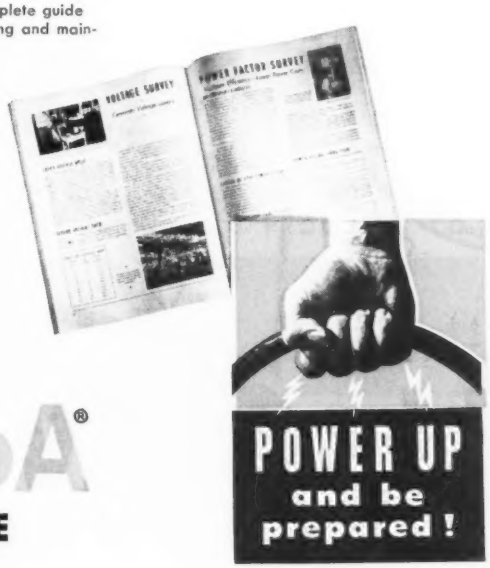
PRODUCTION SLOW-DOWNS, lost man-hours, electrical leaks through over-heating are all results of poor plant wiring . . . wiring that just can't deliver the power you pay for—day in, day out.

POWER UP—And Be Prepared before a breakdown occurs, before inadequate wiring blocks expansion. Call on your consulting, utility, plant power engineer, or electrical contractor for a complete check-up.

AND, MOST IMPORTANT OF ALL, write for your free copy of *POWER UP—And Be Prepared!* This complete guide to wiring will show you how simple alterations now will save you money every day—and huge repair bills later!

Anaconda Wire & Cable Company,
25 Broadway, New York 4, N. Y. 50392

FREE! A complete guide to plant wiring and maintenance.



ANACONDA®
WIRE AND CABLE

Get Shell Clavus Oil to...

give your compressors protective lubrication

Matches The Job All 4 Ways

1. **KEEPS DOWN CARBON**—Shell Clavus Oil not only forms a minimum of carbon but that minimum is also soft ... harmless. Valves stay clean and free working.

2. **KEEPS DOWN GUMS**—because this oil has all the unstable compounds removed.

3. **ON THE JOB...HOT OR COLD**—always ready to flow. No "dry starts" even in cold weather.

4. **NON-FOAMING**—soap-like compounds that cause foaming are taken out of Shell Clavus Oil by a special clay filtering process.

SHELL

SHELL CLAVUS OIL

made especially for compressors

FRACTIONAL GRADES enable you to choose the exact degree of hardness desired by splitting every normal grade into three degrees of hardness, where a whole grade change would be too great.

. . . and all manufactured in FRACTIONAL GRADES. This outstanding and exclusive Bay State development eliminates using segments that are "close enough" for hardness grade. FRACTIONAL GRADES permit a precise selection of grade for the work intended.

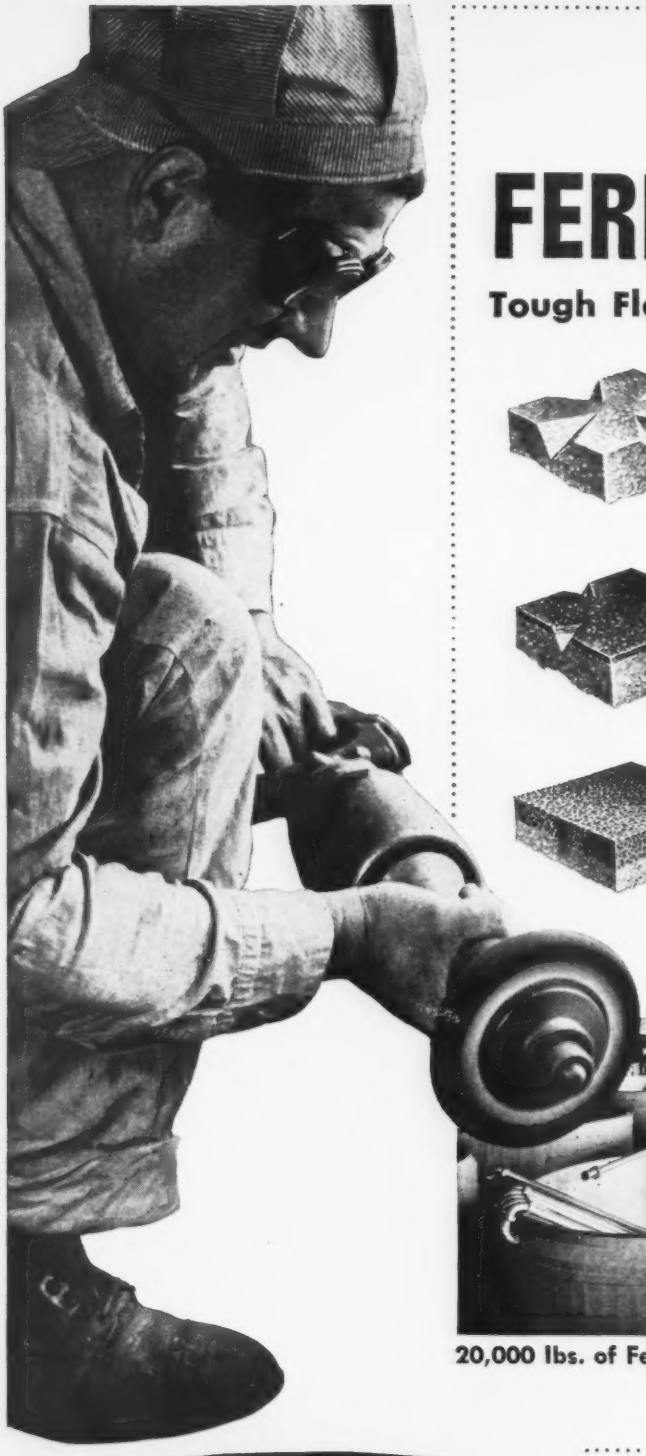
ADVANTAGES: Increased Production . . . Faster Stock Removal . . . Sharper, Cooler Cutting . . . Better Finish . . . Closer Tolerance . . . Lower Power Consumption.

BAY STATE'S other abrasive products for surfacing jobs are also available in FRACTIONAL GRADES.

BAY STATE ABRASIVE PRODUCTS CO., Westboro, Mass.

BAY STATE®

WEST COAST DISTRIBUTORS



Blue Temper

FEREM FLOORS

Tough Floors for Tough Conditions

Cement

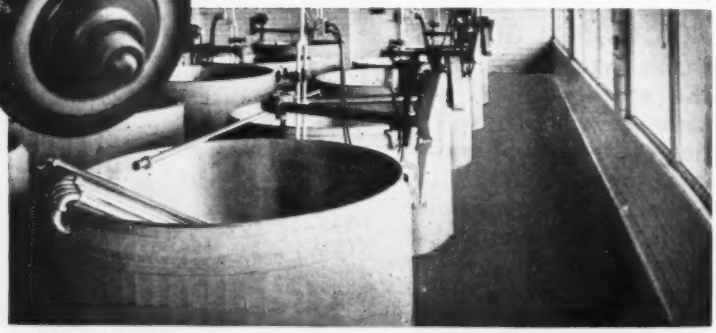
Notice the porous structure of the ordinary cement floor which is easily subject to crumbling by heavy traffic or shock loads as revealed by the grinding wheel test.

Metallic Hardener

In processed floors using metallic hardeners or metallic plating, the wearing surface is malleable but SLIPPERY and comparatively thin as the wheel test reveals.

Ferem "Blue Temper"

Ferem is the "Blue Temper" component. A dense, ductile and almost diamond hard floor surface results. NON-SLIP and highly wear resistant. The face of the test wheel polishes but does not cut.



20,000 lbs. of Ferem installed at the West Middleton Swiss Cheese Co.

A. C. HORN COMPANY, INC.

Manufacturers of materials for building maintenance and construction—established in 1897

10th Street & 44th Avenue, Long Island City 1, N. Y.

Los Angeles • San Francisco • Houston • Chicago • Toronto

SUBSIDIARY OF SUN CHEMICAL CORPORATION

HORN PRODUCT

WI

GENTLEMEN:

Please send complete data on FEREM FLOORS.

NAME_____ TITLE_____

COMPANY_____

ADDRESS_____

CITY_____ STATE_____

IN OUR MAILBOX

Contamination vs. Pollution

Editor, Western Industry:

I have read with interest the article on pollution control in California. One thing that appeals to me is the following statement which appeared in the article:

"The opportunity for industries and municipalities to dispose of sewage and wastes at least cost is developed in the law by newly defined concepts of 'contamination' on the one hand, and 'pollution' and 'nuisance' on the other.

"The law makes a clear distinction between 'contamination'—a condition threatening the public health—and 'pollution' and 'nuisance'—which do not imply a threat to the public health. As to contamination, it clearly must (and should) be abated immediately."

In most cases of both Federal and State Law, and I believe this to be true in Oregon and Washington, no such distinction is made between contamination and pollution. The whole subject is generally grouped under pollution, which unfortunately leaves the impression in the mind of the average reader of news releases by state regulatory bodies, as well as newspaper editorials, that the discharge of industrial waste and particularly that of pulp and paper mill waste is pollution in its worst sense and is just as bad to all intent and purposes as the discharge of raw sewage by municipalities. As you know, nothing could be further from the truth.

FRANK N. YOUNGMAN,
Vice President,
Crown Zellerbach Corporation,
Portland, Oregon.

Room for Development

Editor, Western Industry:

The observations in your survey are quite interesting. I believe, however, that particularly with respect to indirect labor costs you may have obtained some slightly optimistic replies—at least from what I was able to observe during a number of years in the public accounting profession. Certainly, I found the use of budgetary controls on the West Coast to be quite limited and considerable room for development of this type of control.

DAVID W. CHAPPUIS, Controller
Marchant Calculating Machine Company
Oakland, California.

How to Keep Abreast

Editor, Western Industry:

I have found your Review and Forecast Number of exceptional interest and have added several items to my file of information upon western industry.

I found your article on "Expanding Economy" to be of especial interest, as well as Louis B. Lundborg's presentation of "Era of Western Unity" article.

Mr. Lawson and members of his staff rely upon *Western Industry* to keep abreast of developments in their area, and from time to time refer special articles to New York.

P. P. PRATT,
Assistant to Vice President,
Mfg. and Engineering Dept.,
General Foods Corp.,
250 Park Ave., New York.

EDITORIAL COMMENT

More on Labor Cost Controls

WHEN a capital improvement doesn't pay out when it ought to, or a job costs far more than expected, who is to blame? Failure to recognize indirect labor costs as well as direct is bound to produce these undesirable results, says one of our readers, top Western executive of a large-scale enterprise. Commenting further on the discussion of labor cost control in our August issue, he stresses the necessity of the foremen having full information on labor costs, in order to control them at the source.

His remarks in full are as follows:

"I was very much interested in reading the discussion of labor cost control in your August issue. The concept of total labor cost, direct plus indirect, is one of vital importance and should be recognized by management from the top down through and including the foremen. The latter, who are actually an integral part of management, particularly must have the information in order to control labor costs at the source.

"The 'true' labor cost cannot be determined nor can the 'final' cost be established without giving proper consideration to the 'indirect' labor costs along with the direct labor cost. Unless this is done, the time required for a capital investment to pay for itself will be underestimated or the actual cost of a job will be underestimated by as much as from 15 to 20 per cent or more.

"Since 1948 the total labor cost per shift for our respective operating units has been obtained monthly from our accounting department, and this information is made available to our operating department heads down through the line to the foremen."

Selling the Government Involves Selling

IT SEEMED to be brought out very clearly at the industrial mobilization meetings held last month in Los Angeles, San Francisco and Seattle that selling to the government involves just as much selling as to any other outlet. The various procurement officials have to be shown that your merchandise or service is of satisfactory quality, that it is adapted to the required use, that you can do the job on time and service it afterward if necessary. When the procurement officials find it satisfactory to do business with you, naturally you will get the preference when purchases have to be made without waiting for bids. If they do not know who you are or what you can do, it is your fault, not theirs. The government is doing a fine job in decentralizing purchasing as far as possible, but it is not up to the government to provide a silver platter on which to hand you the business.

Joint Watch Tower

HERE'S AN IDEA that seems to have sound and interesting possibilities: the section on furniture manufacturing of a Los Angeles County conference on employment held last April now recommends the establishment of a continuing committee composed of representatives of management and labor in the industry to study employment and other economic conditions in the furniture industry.

CALENDAR OF MEETINGS

Oct. 13-14—Western Regional Conference, American Foundrymen's Society, at Seattle, Wash. Contact John Russo, pres., No. Calif. Chapter, at Russo Foundry Equipt. Co., 7315 Holly, Oakland, Calif.

Oct. 16-17—Western States Council, annual meeting, Reno. Contact Gus P. Backman, president, care Salt Lake City Chamber of Commerce.

Oct. 16-18—National Defense Transportation Association, at San Francisco. Contact James A. Sullivan, Public Information Division, Ft. Mason, San Francisco, Calif.

Oct. 16-20—International Air Transport Association, at San Francisco. Contact Rudolph Feick, Secretary, 11 Broadway, New York.

October 17-19—24th Pacific Coast Management Conference at Hotel Claremont, Berkeley, California. Sponsored by California Personnel Management Association.

Oct. 19—California Manufacturers Association annual meeting at Hotel Fairmont, San Francisco. Contact CMA, 220 Bush St., S.F., or 315 W. Ninth St., L. A.

Oct. 19-20—American Ceramic Society, at San Francisco. Contact Dr. J. A. Robertson, Westvaco Chlorine Products Corp., Box 1061, Newark, California.

October 23-25—Pacific Logging Congress, at Multnomah Hotel, Portland, Ore. Contact Carwin A. Woolley, AT. 7971, Terminal Sales Building, Portland.

Oct. 26—Regional Conference of San Francisco Sales Mgrs. Assoc. at Fairmont Hotel, San Francisco. Contact E. D. Maloney, chairman, at 625 Market St., Rm. 315, San Francisco.

Oct. 26-27-28—National Association of Cost Accountants, regional coast conference at Multnomah Hotel, Portland, Oregon. Contact William H. Holm, general chairman, 203 Mayer Bldg., Portland 5.

Oct. 30-Nov. 2—American Bottlers of Carbonated Beverages—St. Francis Hotel, San Francisco. Contact John Riley, sec., 1128 16th St., N.W., Washington, D. C.

Nov. 10—American Iron & Steel Institute regional technical meeting at San Francisco.

Nov. 15-18—National Paint, Varnish, & Lacquer Association, at San Francisco. Contact Jos. F. Battley, Pres., 1500 Rhode Island Ave. N. W., Washington 5, D. C.

Nov. 27-28—Pacific Northwest Trade Association, at Olympic Hotel, Seattle, Washington. Contact D. C. Knapp, Executive Secretary.

December 4-5—Northwest Frozen Foods Association, at Multnomah Hotel, Portland. Contact E. M. Burns, BR. 7074, Northwest Frozen Foods Association, Title and Trust Bldg., Portland.

THE WESTERN OUTLOOK . . . News · Statistics

War orders fail to bloom; Diesel fuel demand revives steam locomotives; Doors doubtful; Log supply worries lumbermen; Sugar buying sours; Demothballed planes zoom.

IT IS STILL too early to see much effect on Western industrial fabrication operations of the war production program. For resources it is a different story, with the stepping up of steel output, the increased demand for copper and other strategic materials, and greater employment in various lines, resulting in decreasing supply of manpower.

In any event, it must be realized that prospective war production will be only one-fourth of what it was in World War II, as was pointed out in the industrial mobilization meetings recently held in Los Angeles, San Francisco and Seattle. But this one-fourth will be superimposed on, or carved out of, an economy that was already feeling a ground swell of expansion when the war in Korea broke out.

Manufacturing employment in the three Coast states for July was up 60,000 over a year ago, in the Mountain states 5,000, rail freight unloadings in the West were up 10% and carloadings up slightly, interstate truck movements reported by California 40% or more above last year and by Arizona 25%. All of this obviously was the outcome of pre-38th Parallel domestic causes.

Only 10% of 300 California manufacturing companies had received direct orders in early September from the Government as a result of the war, but an additional 30% had received orders indirectly resulting from Gov-

Continued on page 27

Business Activity Indices

	May	June	July
[1]Arizona	338.0	355.6	366.1p
[2]California	233.5	236.5	243.6p
[3]So. California	292.9	299.9	327.2p
[4]Pacific N.W.	234.6	234.5	.....
[4]Puget Sound	228.2	229.1	.....
[4]Inland Empire	253.9	250.7	.....
[4]Lower Columbia	232.4	232.6	.....

1. Valley National Bank (Phoenix) index, based on a weighted composite of retail sales, agricultural income, and employment in mining, manufacturing and construction, seasonally adjusted. 1940 = 100.
2. Wells Fargo Bank & Union Trust Co. index based on the following components: Industrial production, freight carloadings, bank debits, department store sales (weighted 4, 3, 2, 1, respectively, and adjusted seasonably).
3. Security-First National Bank of Los Angeles index, based on the following components and weights, and adjusted seasonally: department store sales, 15; building permits, 5; Los Angeles bank debits, 20; residential city bank debits, 5; agricultural city bank debits, 5; industrial employment, 20; industrial power sales, 13; railroad freight volume, 6; telephones in use, 7; real estate activity, 4.
4. Index compiled by Bureau of Business Research, University of Washington. Based on a weighted composite of population, value of manufactured products, dollar volume of wholesale trade, dollar volume of retail trade, dollar volume of service-establishment businesses, employment, and income. Weights were determined of the economic importance of each of the 3 regions of the Pacific Northwest based on these 7 indicators.

   For the Pacific Northwest as a whole, the three regional index figures are weighted as follows: Puget Sound Area, 43.7%; Lower Columbia Area, 37.1%; Inland Empire Area, 19.2%.

p Preliminary estimate.

MANUFACTURING EMPLOYMENT

Estimated Number of Employees

Source: U. S. Bureau of Labor Statistics and State Agencies

(In thousands of persons)

	June 1949	June 1950	July 1949	July 1950
Washington	176.8	169.6	171.2	175.2
Oregon	137.1	138.4	135.3	139.1
California	699.4	734.8	711.5	763.7
TOTAL PACIFIC	1013.3	1042.8	1018.0	1078.0
Montana	18.4	19.1	18.9	19.6
Idaho	22.6	20.4	23.4	23.8
Wyoming	6.5	5.7	6.6	6.1
Colorado	53.0	54.3	54.1	56.5
New Mexico	10.2	11.8	10.3	12.0
Arizona	15.3	16.0	14.6	15.9
Utah	28.0	27.1	31.0	30.1
Nevada	3.1	3.1	3.1	3.2
TOTAL MOUNTAIN	157.1	157.5	162.0	167.2

INDEX OF DEPARTMENT STORE SALES

(Index numbers, 1935-39 daily average = 100 with seasonal adjustment.)

Compiled by Federal Reserve Bank

	July 1949	July 1950
Total 12th Fed. Res. Dist.	329	454
Southern California	357	499
Northern California	301	411
Portland	310	428
Western Washington	352	483
Eastern Washington and northern Idaho	354	490
Utah and southern Idaho	308	398
Phoenix	416	602

CONSUMERS' PRICE INDEX

From Bureau of Labor Statistics

100 = 5 yr. Avg. 1935-39

1950	Los Angeles	San Francisco	Portland	Seattle	Denver
Jan.	15....166.9	.....	173.8	.....	.....
Feb.	15....166.1	.....	.....	171.6	.....
Mar.	15....165.9	172.3	.....	.....	.....
Apr.	15....166.9	.....	174.8	.....	165.7
May	15....166.7	.....	.....	171.8	.....
June	15....166.7	173.1	.....	.....	.....
July	15....168.2	.....	179.2	.....	169.5

WHOLESALERS' SALES

In thousands of dollars. Percentage changes are from corresponding month of preceding year. From Bureau of the Census.

MOUNTAIN

1950	Automotive Supplies	Change	Electrical Goods	Change	Furn. and house furn.	Change	Groc. and foods exc. farm. prod.	Change	General Hardware	Change	Industrial Supplies	Change	Lumber and bldg. mat.	Change	Mch. equip. and supplies excl. elec.	Change
February	795	— 7	3,131	+ 6	804	+30	.....	.....	1,360	+ 1	1,797	— 9	1,733	+27	397	0
March	643	—23	3,671	— 2	1,202	+49	.....	.....	2,138	+ 2	2,397	+ 9	2,371	+19	682	+ 8
April	907	+10	3,288	— 3	907	+20	.....	.....	1,998	— 8	2,272	+16	1,602	+21	716	+ 1
May	781	— 6	4,050	+ 9	1,045	+43	.....	.....	2,157	+14	542	+19	1,707	+47	534	—18
June	857	+15	4,074	+ 1	1,294	+15	.....	.....	2,186	+ 7	710	+ 5	1,942	+ 7	565	—23
July	1,277	+47	5,347	+58	1,261	+40	.....	.....	2,488	+40	2,897	+60	1,674	+110	868	+99

PACIFIC

February	2,892	+ 5	12,276	+ 7	2,508	+15	.....	.....	5,775	— 8						
March	2,320	— 2	14,254	+ 7	3,402	+27	.....	.....	7,371	— 2						
April	1,437	—13	13,120	+ 3	3,124	+25	.....	.....	6,659	— 2						
May	1,800	+ 9	14,510	+ 7	1,896	+39	.....	.....	7,953	+ 9						
June	2,592	+ 3	15,062	+ 3	3,108	— 5	.....	.....	8,675	+ 7						
July	2,919	+23	22,450	+80	3,902	+ 3	.....	.....	10,280	+81						

INDEX NUMBERS OF WHOLESALE PRICES BY GROUPS OF COMMODITIES AND BY MONTHS

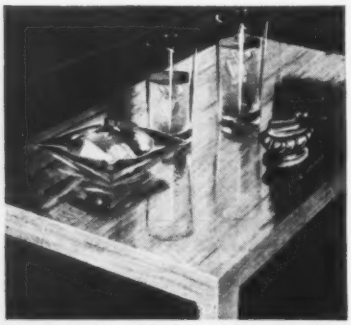
Bureau of Labor Statistics, Washington 25, D. C.

(1926 = 100)

1950	Farm Products	Foods	Hides and Leather Products	Textile Products	Fuel and Lighting	Metals and Metal Products	Building Materials	Chemicals and Allied Products	House Furnishing Goods	Miscellaneous	ALL COMMODITIES
February	159.1	156.9	179.0	138.2	131.2	168.6	192.7	115.3	145.0	110.0	152.7
March	159.4	155.5	179.6	137.3	132.1	168.4	193.9	116.3	145.3	110.7	152.6
April	159.3	155.3	179.4	136.4	131.2	168.7	194.8	117.1	145.8	112.6	152.9
May	164.7	159.9	181.0	136.1	132.1	169.7	198.1	116.4	146.6	114.7	155.9
June	165.9	162.1	182.6	138.6	132.7	171.7	202.1	114.5	146.9	114.8	157.3
July	176.0	171.4	187.0	142.8	133.4	172.2	207.2	118.1	149.0	119.0	162.9

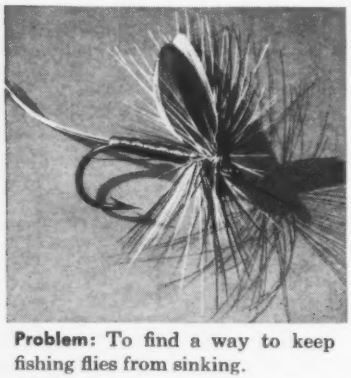
Problem: To find a finish for cork inner soles that would resist perspiration and abrasion, add to foot comfort.

Solution: Industrial Finish Engineers developed a special finish that is not affected by abrasion or perspiration, actually improves appearance and comfort of inner soles. Sprayed on, it is air-dried in a few minutes—cuts production costs.



Problem: To find a finish for furniture that would resist water and other liquids.

Solution: Industrial Finish Engineers developed a finish that is impervious to water stains, resists heat and abrasion, alcohol or food stains . . . helps build sales.



Problem: To find a way to keep fishing flies from sinking.

Solution: Industrial Finish Engineers developed a special finish that made the feathers on the flies waterproof—kept them floating, made fishermen happy. Manufacturing costs were kept low—the flies sold faster.

Don't scold him . . . you can clean these blinds easily

Problem: To find a finish for Venetian blinds that could be wiped clean with a damp cloth, erasing hand marks and dirt easily, quickly.

Solution: Industrial Finish Engineers developed special finishes that won't hold dirt—won't chip—will prevent rust. These finishes are flexible—can be coated on long continuous strips of metal before strips are cut into slat lengths. This cuts down manufacturing costs tremendously.

There is a way you can cut costs—ask any Industrial Finish Engineer!

On this page are case histories of prominent manufacturers which prove that Industrial Finish Engineers actually can cut down production time and costs.

They are doing it for others. They can do it for you. So let an Industrial Finish Engineer make a time study of your production. Let him investigate your finishing cycles. Let him show you how quality Industrial Finishes, properly engineered for your products, can help you save expenses. Consult him today. More and more of your customers *start buying with the finish in mind.*

The better the finish - The better the buy!

Continued from page 25

ernment purchases. More than half these firms thought their fourth quarter business would not reflect much increase due to the war, and less than 20% expected such orders in important volume. Nearly half of these firms reported their productive capacity up more than 50% from World War II, and about 80% of the total productive capacity apparently would be available with little or no delay in case of all-out industrial mobilization.

Starts in housing construction have continued unabated, although some of the larger building contractors are reported hesitant about contracting for supplies of doors from door manufacturers in the Pacific Northwest. August was the second highest month in the West in building permits, according to *Western Building*, and was 26.5% above August 1949. The principal shortage in materials apparent so far is in plasterboard.

Electric Energy

When the good fairy Hydro waves its wand over the West but no additional kilowatts appear, then the little gnome Steam grunts and toots and lo! kilowatts spring out of the ground everywhere. So the fact that

run-off from Hoover Dam is not so good this year as last, and the amount of power available above firm contracts will be only 200 million kilowatt hours, compared to between 1.7 billion last year, is not disturbing, (total output was 6 billion kwh., firm power 4.7) for it simply means using more steam. Southern California Edison has tentatively authorized another 200,000 kw. steam plant, and California Electric Power has a 60,000 kw. plant on order to be constructed in the San Bernardino area by 1952. In the northern part of the state, Pacific Gas & Electric has another 300,000 kw. plant coming up, location not yet announced.

Hydro supply in the Pacific Northwest has been good, and use of steam has been unnecessary except for a few days. In Utah steam has been needed for peaking.

ELECTRIC ENERGY

(Production for Public Use—in thousands of kilowatt hours.)
(Source: Federal Power Commission)

	June 1949	June 1950
Mountain	1,257,771	1,372,451
Pacific Northwest	1,597,689	1,747,876
California	2,015,236	2,159,357
TOTAL PACIFIC	3,612,925	3,907,233

BANK DEPOSITS

(In millions of dollars—adjusted)

Average of daily figures. All member banks in the 12th Fed. Res. District. Demand deposits, excluding U. S. Government deposits, cash items in process of collection, and interbank deposits.

	July 1949	July 1950
Net Demand Deposits	8,321	8,925
Time Deposits	6,154	6,277

BANK LOANS

Industrial, commercial and agricultural
(In millions of dollars)

From weekly reporting member banks of Federal Reserve System in 7 Western cities: L.A., S.F., Portland, Seattle, Tacoma, Spokane and Salt Lake.
(Average of Wednesday reports)

July, 1949	2,416
July, 1950	1,913

Oil

New records are being set by the oil industry in the upsurge of activity touched off here by the Korean war. Gasoline production and oil refining have reached new high and output of crude oil is hovering near the all-time peak of December, 1948.

This sharp step-up was made easy for the U. S. industry by the fact that its domestic capacity to produce and refine oil is now about 25% higher than when World War II reached its climax. Now, of course, huge foreign sources have been developed in the Middle East as well as in Canada, providing a substantial cushion against future potential war needs. U. S. refineries still are operating at only about 90% of capacity.

The West's oversize inventories of heavy fuel oils continue to shrink, to oil men's considerable relief. Accelerated consumption by shipping and by industrial users have drained off a net 4,000,000 barrels from storage this summer. Helping too were the steam locomotives being called out of retirement by West Coast railroads. Southern Pacific's western fuel oil consumption thus has gone up 18% and Santa Fe's needs have doubled. It is a reversal of the recent trend toward lighter fuels brought on by dieselization of the rails.

Prospecting for oil is stimulating drilling to a degree that already is creating some shortages of tubular goods such as casing and pipe, although forward buying in fear of allocations probably has played a major part.

Oil wells in California drilled this year up to Sept. 23 totaled 1324, as against 1894 last year to same date.

FREIGHT

Cars of revenue freight, railroad carriers in 11 Western States
Compiled from Assn. of Am. R. R. weekly reports

	Carloadings		Received from Eastern Connections	
	1949	1950	1949	1950*
July	673,346	662,165	332,941	367,797

* 5 weeks.

TRUCK TRAFFIC

(Number of commercial trucks entering state through border checking stations)

	CALIFORNIA		ARIZONA	
	1949	1950	1949	1950
July	14,774	20,534	21,465	26,913

PETROLEUM

(California, Oregon, Washington, Arizona, Nevada)
(From Bureau of Mines)
(In Thousands of Barrels Daily)

	June 1949	June 1950
Crude Production	921	881
Gasoline	380	396
Gas, Oil and Diesel	132	144
Heavy Fuel Oil	339	296
ALL PRODUCTS	994	958

Coal

Bituminous coal production in the intermountain region was on a seasonal uptrend during August but operations were limited by a shortage of railroad cars. Most mines are operating five days per week but could be working six days if cars were available. Demand is still moving upward but transportation is expected to be a production limiting factor for some time.

Continued on page 29

BITUMINOUS COAL AND LIGNITE

(In thousands of tons—From Bureau of Mines)

	June 1949	June 1950
Colo.-New Mexico	288	263
Wyoming	327	495
Utah	356	482
Montana	204	170
Wash.-Alaska	100	118

NATURAL GAS

CALIFORNIA

(Compiled by Roy M. Bauer, gas supply supervisor, Southern California Gas Company)
(in thousands of cubic feet)

Number of Consumers	June 1950	June 1949
Domestic and Commercial	2,756,268	2,594,830
Industrial	6,788	5,798

UTILIZATION

	6 months, 1950	6 months, 1949
Domestic and Comm. Sales	161,957,148	161,924,011
Industrial Sales	68,419,627	56,049,200
Electric Generation	21,953,138	21,474,661
Net Receipts from Producers	262,051,950	247,052,479

AIR FREIGHT

(In pounds. Figures from airports)

1950	Los Angeles		San Francisco		Oakland		Portland		Seattle	
	In	Out	In	Out	In	Out	In	Out	In	Out
February	1,027,146	1,086,299	814,706	1,179,674	107,182	158,467	.....	.....	.....	.....
March	1,235,068	1,330,344	1,012,229	1,245,260	137,671	253,652	.....	.....	.....	.....
April	1,142,800	1,326,717	920,288	1,258,831	122,080	208,185	.....	.....	522,339	1,102,309
May	1,250,339	1,579,975	1,219,400	1,525,760	109,456	254,611	.....	.....	487,571	1,114,512
June	1,224,869	1,366,397	953,725	1,417,725	75,187	172,046	.....	.....	.....	.....
July	1,304,756	1,557,178	1,543,444	1,793,024	545,099	588,418	.....	.....	774,536	1,108,359

One point we always remember

Since it first started operations, a guiding policy of Kaiser Steel has been to help build a stronger West.

Mill by mill, Kaiser Steel's modern Fontana plant has been expanded to produce a diversified range of steel products.

The result is the wide variety of steel products listed below. Steel for almost every requirement . . . ranging from appliances to farm implements, from bridges to automobiles, from stoves to line pipe.

By expanding with the fast-growing western market, the West's only integrated independent steel plant is bringing more industry, more jobs, more wealth to the West.

It's good business to do business with

Kaiser Steel

built to serve the West

PROMPT, DEPENDABLE DELIVERY AT COMPETITIVE PRICES • plates • continuous weld pipe • electric weld pipe • hot rolled strip • hot rolled sheet • alloy bars carbon bars • structural shapes • cold rolled strip • cold rolled sheet • special bar sections • semi-finished steels • pig iron • coke oven by-products
For details and specifications, write: **KAISER STEEL CORPORATION, LOS ANGELES, OAKLAND, SEATTLE, PORTLAND, HOUSTON, TULSA, NEW YORK**

Continued from page 27

Steel

Steel output in the West this year apparently will reach 5 million tons, twice the prewar total, as the result of increased demand and increased facilities, and the National Industrial Conference Board describes the Pacific Coast as now producing two-fifths of what it consumes, as compared with less than one-fourth in 1937. Steel use has doubled in the Mountain states in the last decade, according to NICB, the West Coast in 1947-48 used 7.6% of the nation's total output, as against 5.6% in 1937. Of this 7.6%, California accounts for 6.5%, a gain of 1.9% in percentage for California for the decade. Pennsylvania was the biggest loser, and its 1948 shipments were only 10% of the national total, while 30 years ago Pennsylvania was the largest steel consumer in the country, absorbing nearly a fifth of the total. Michigan is now the largest consumer.

At this writing, Western steel producers were looking forward to allocations. Demand has been heavy, much of it for inventory, as the war situation has not yet had much effect on industrial production in the West. There has been no slowdown in civilian operations and the housing programs, which provide the outlet for so much of the Western production, continue unabated with no diminution in the number of starts.

The flow of steel toward the atomic energy operations is increasing, and there has been some emergency fabrication for shipment to the battlefields. The principal increase in use, however, seems to be in railroad car building, with Pacific Car & Foundry in Seattle and the railroads themselves stepping up their output.

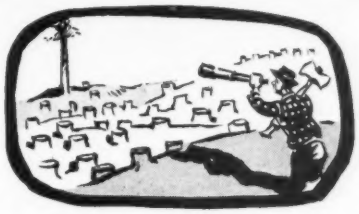
Steel drum and pail producers on two-shift basis with some plants running six-day week. Drum production first half of year up 7% over last year, pails 10%, says Dept. of Commerce. Two new can plants to be in production in southern Calif. before end of year, and one Northwest plant reopening. Sanitary and general line cans 15% to 20% up.

Nonferrous Metals

In response to rising prices and growing pressures from consuming industries, nonferrous metal production moved upward during August. Copper mines are close to capacity operations. Lead and zinc mines which have been closed for months are reopening. Manpower shortages are beginning to be felt in the industry.

Aluminum

Although the stepped-up aircraft programs have not yet been reflected in bigger orders for aluminum, producers are already allocating supply to customers on a basis of their past consumption.



Lumber

Prices, production and market remain on the fantastic side. There is nothing on the horizon now which portends a softening up during the current year or well into next year. The entire industry is running at a high capacity rate, buyers are competing furiously for mill output, and Eastern buyers, in addition to sending their men to scout the Western sources of supply, are resorting to open advertising to get contacts and contracts.

WEST COAST LUMBERMEN'S ASSOCIATION

(Thousands of board feet)

	August Aver. Per Wk. 1950	1950 M Feet 35 Weeks	1949 M Feet 35 Weeks
Production	241,839	6,863,301	6,398,572
% 1945-1949 Yrs.	147.4%	119.5%	111.4%
Orders	222,384	7,551,623	6,401,070
Shipments	206,958	7,011,738	6,282,574

WESTERN PINE ASSOCIATION

(Comparative report, 106 identical mills, in thousands of board feet)

	Week Ending Aug. 26	Three Year Weekly Avge. for Aug.	Total to Date 1950	Total to Date 1949
Orders	72,667	73,807	2,520,820	2,028,786
Shipments	80,955	70,692	2,498,515	1,984,289
Production	86,291	67,414	2,151,054	1,913,607

CALIFORNIA REDWOOD ASSOCIATION

(Thousands of board feet)

	July 1950 All Species	July 1949 All Species
Production	42,597	40,953
Shipments	44,011	31,664
Orders Received	48,502	37,861

SOFT PLYWOOD

From Bureau of the Census

PRODUCTION

(in thousands of square feet)

	1949	1950
June	160,820	223,051

PULPWOOD

(Pacific Northwest)

(Cords of 128 cu. ft., roughwood basis. Source: Bureau of Census)

	June 1949	June 1950
Receipts	368,695	315,879
Consumption	251,302	322,132

IRON AND STEEL

WESTERN AREA OF THE UNITED STATES

From American Iron and Steel Institute (in net tons)

	July 1949 Output	July 1949 Per Cent of Capacity	July 1950 Output	July 1950 Per Cent of Capacity
Pigiron Output	170,475	69.1	245,213	85.7
Steel Output	338,861	76.0	465,724	95.1
Alloy Steel Output	4,452		10,791	
Carbon Ingots, Hot Topped*	6,828		8,243	

*Included in total steel.

Loggers are being paid unheard-of wages, by any old time comparison, and apparently are not too plentiful. July logging wages averaged $2.202 for three districts; 153 sawmill operations $1.85.

The biggest question mark right now is what the log supply will be next winter. Too large a portion of the present log output is going right to the saws instead of being stockpiled against the demands of next winter when many logging operations will undoubtedly have to suspend for a few months. Indication that present conditions will prevail for a long time ahead is seen in recent huge timber purchase by a big company from the U. S. Forest Service at near record high stumpage prices.

Plywood

Demand and price continue very strong. Plywood in mid-September was running around $97 per M feet, ¼" basis. Mills have full order files and are running at high capacity. One big difficulty has been in Oregon where mills are experiencing the annual car shortage. Southern Pacific has a considerable monopoly in this area which has seen great growth in plywood production and lumber in recent years. Inability to move shipments out has caused considerable distress with some Oregon mills and has caused many expedients to be tried in order to keep going.

Door prices and demand are still strong, but there is a tendency to soften, in view of imposed and prospective restrictions in housing by government in view of world situation and military step-up. Large speculative builders are showing some hesitancy. Doors quickly reflect the housing situation, whereas plywood has innumerable uses and is not too much affected by housing situation alone.

Pulp

There is nothing visible to indicate retreat from the present picture of high capacity production, strong demand and strong prices. Paper prices have advanced recently all along the line. If military effort steps up, a lot of pulp tonnage is bound to be diverted to explosives and to packaging requirements of military rather than civilian goods. Some new capacity has now been added with the starting of another large mill in British Columbia.

With lumber and plywood demand strong, logs are in tight supply and this will reflect stronger rather than weaker prices for pulpwood. Generally, the mills have had to turn increasingly to salvage wood more and more, rather than logs. Washington mills, still up against compliance on an anti-pollution order, have offered an acceptable temporary solution in some cases based on more effective dispersion of pulp mill wastes to deeper and larger bodies of water. Such temporary measures, however, will not eliminate the need for ultimate compliance to avoid dumping of wastes altogether. Public opinion on pollution continues strong.

Solid and corrugated shipping case sales 10% to 20% above last year, according to Department of Commerce, many producers operating against six to eight week order backlog. Set-up box sales for second quarter 20% below 1949. Combination wood-fibre shipping crate output 15% above last year's midpoint. Industrial multi-wall bag orders

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Continued from page 29

subject to as long as 60-day delay in deliveries. Commerce says sweeping consumer acceptance of pre-packaged meat, plus wholesaler activity in fresh fruit and vegetable packing has broken users' resistance to even the most expensive visible films.

Furniture

Barring a wave of cancellations, furniture manufacturers ought to finish 1950 at near-capacity operating levels. Thanks to retailers' scramble to rebuild depleted inventories, and to the brisk surge of scare buying by the public during midsummer, most plants are well booked with orders.

Many observers temper their optimism, however, with the reflection that while retail sales ran some 30% ahead of last year, wholesalers' sales this fall were up 63% and manufacturers' bookings jumped nearly the same amount.

With the public's panicky reaction now subsiding, forward buying by the trade is likely to level off to a rate more closely geared to the actual flow of goods to the consumers. This is particularly true because the majority of retailers have fairly limited capital resources.

Consumers, in turn, appear to be concentrating on the critical items that were scarce during World War II, such as appliances, and their buying of general furniture probably is stimulated mainly by the fear of price advances rather than actual shortages.

Sugar

Panic buying that was so prevalent in July and August has stopped in the West, although it seems to be continuing in the East, and there has been a general slump in sales. C&H Sugar Refining Company has discontinued overtime at its big cane refinery at Crockett, Calif. Apparently the cane carryover into 1951 will only be moderate, however. Prices have not fallen and the $8.40 price now prevailing is the highest since August 1947. California beet sugar harvest promises to be the greatest in history, and the yield is excellent, although sugar content of the beets not so good. Canners' purchases of sugar have been normal; greater per cent than ever before was in the form of liquid sugar.

Building Materials

Construction costs showed a rise in July over June, according to the American Appraisal Company, whose index for four Western cities, reflecting the cost trend in each city but not the relative trend between the cities, is as follows:

	All-Time High Oct. 1948	June 1950	July 1950
Denver	458	449	454
Seattle	523	516	521
San Francisco	460	459	465
Los Angeles	488	485	494

CEMENT

(In thousands of bbls.)
From U. S. Bureau of Mines

	June 1949	June 1950
California	2,053	2,577
Oregon-Washington	738	720
Colo.-Wyo.-Mont., Utah-Idaho	685	795

Flour

Western mills are all running five and six days a week now, as the result of good government orders and the bakers buying fairly well, but scarcity of paper bags has bobbed up as a problem. Prospective opening up of the Philippine market has not panned out so well, which is a disappointment to the West Coast mills. In July the Philippines took two months' supply but nothing much has happened since.

Canning and Packing

One reaction to the increased demand resulting from the war situation is an advance in the price paid by the canners to the growers for tomatoes. California Packing Corporation, dominant factor in the industry, will pay an additional $2.50 a ton at the end of the season to growers who live up to their contractual agreements, it is understood. The tonnage this year is large and the contract price made earlier in the season was $20 a ton, compared with $27 last year. After the outbreak of hostilities in Korea, growers began agitating for rewriting of contracts at $27.

California canners are reported to have taken around 200,000 tons of pears this season from growers, compared with 171,000 tons. A new outlet for pears is in juice.

Canners League of California reports the 1950 pack of brined cherries at 61,808 barrels. In 1949 the total was 120,928 barrels, in 1948 93,240 barrels.

Alaskan season, now nearing close, has been generally disappointing. Some of the more northerly early runs were near total failures. The pink run in southeastern Alaska which last year was very heavy, is running about one-fourth of 1949 pack, with the season nearly completed. The Alaskan pack as a whole will be substantially lower than 1949 it appears. Juneau district was a failure. Wrangell was poor. Western Alaska was poor. In Puget Sound the sockeye run, which this year was expected to be pretty fair, simply hasn't materialized. Prices paid for fish by buyers has firmed up sharply as result of sockeye failure. Columbia River Chinooks now running in fair volume.

Prices on canned salmon are strong. Last year's pack was all sold out practically before 1950 season opened. Most canned fish is going into domestic consumption. Little interest in export in view of ability of home market to take everything.

WHEAT FLOUR

In thousands of sacks
(From Bureau of the Census)

	June 1949	June 1950
Oregon-Washington	1,210	1,275
Montana	268	253
Utah	305	303
Colorado	346	312
California	415	384
TOTAL	2,544	2,527

Aircraft

Frantic de-mothballing of B-29's and other planes for combat has created more visible stir thus far than the much-headlined boost in aircraft production. Job seekers still flock by hundreds to plants that so far can use only the top skills they need so urgently. Few laymen realize that even the aircraft industry can't take off from a standing start, but must develop speed by a series of pre-production stages.

In the first couple of months of Korean war preparations, Southern California's major airframe producers had boosted their working forces by around five per cent, yet they were suffering intensified manpower shortage pains for lack of electronic, chemical, aeronautical and mechanical technicians in certain specialized fields. By year's end, they can expect an increase of some ten per cent, barring unforeseen developments.

This rate of step-up corresponds to a national Air Force schedule which calls for a rise from 48 groups to 58 by the end of 1951 and 69 groups by 1953. All four service branches will build up—strategic bombers, air defense, tactical support craft for troops, and transport. Included is a 50% increase in output of the B-36, increased production of B-50's, and replacement of the B-29 with the new B-47 jet bomber.

Work meanwhile is filtering down to the nucleus of subcontractors which the industry has kept alive throughout the lean years. Parts makers have expanded considerably more in proportion to their size than the major assembly plants, having generally increased their staffs by ten to twenty per cent.

Douglas is beginning to recondition a mothball fleet of B-26 attack bombers to be selected from the extensive reserves scattered among western bases. At Tucson the Grand Central Aircraft Company is trundling B-29's from Davis-Monthan Field to its shops seven miles away and stripping their cocoons away for flight. Many F-51 fighters also are being readied for Korea, where much bad weather gives piston-powered craft, with their lower fuel requirements and longer cruising ability, an edge over the speedier jets.

Consolidated-Vultee at San Diego already was well along on its job of modifying the B-36 when the Korean situation put it on a ten-hour shift basis, with some people working 58 hours a week. Hit with new war demands from all sides, the Navy town of San Diego has suddenly jumped within a few weeks from a Government "D" classification as a "distressed unemployment area" to an

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ETHYL ALCOHOL

(From Bureau of Internal Revenue)
Production *(in proof gallons)*

DOMESTIC UNDENATURED ALCOHOL

	July 1949	July 1950
California	451,006	622,485
Colorado	.....	.....
Washington	.....	392,535

DENATURED ALCOHOL

	July 1949	July 1950
California (Completely Denatured)	4,566	6,674

SPECIALLY DENATURED

	July 1949	July 1950
California	171,858	203,246
Utah	.....	.....
Washington	8,142	16,249

THE WESTERN OUTLOOK 5

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"A" rating denoting substantial shortage of manpower. Solar, producing components for the assembly plants, is hiring women as welders, assemblers and metal fitters and is finding a niche also for the handicapped worker.

Most aircraft plants have begun to plan for the sudden bulge in demand for less skilled manpower that will strike when new production lines are tooled up and ready to roll. They are conducting training courses in an effort to upgrade good workers into lead men and to develop latent talents in prospective template makers, machine operators, and other top-skilled craftsmen.

Apparel

The West Coast apparel industry, still wrapped up in the complexities of bargaining maneuvers with various unions through various trade associations, faces further increases in the cost of manufacturing. New boosts in the price of fabrics are on their way downstream from the mill level.

Already since Korea the price of cotton has gone up about 4½ cents a pound, pushing up cotton goods nearly five cents a yard. Silk, up $1.25 a pound; rayon, up six cents, and wool, up 84, all point to similar increases in the textiles.

The Army has let contracts to various mills for 3,300,000 yards of 18-ounce wool serge cloth. Producers of heavy industrial-type cloth have raised prices and are pretty well booked for the balance of this year.

The stiff jump in world wool prices is believed to come partly from continued declines in supply and partly from feverish Red stockpiling. British and Continental buyers, fearing idleness in Marshall plan factories for lack of materials, competed so strongly in Australian wool auctions as to lift prices 50% above last year's levels.

U. S. mills that had withdrawn their selling prices to wait and see what the big wool auctions brought forth, have found the cost of raw wool will be so high they are boosting their prices on worsteds for next spring by another 87 cents to $1 a yard.

Already garment makers are beginning to think of trying to use more synthetic fibers as substitutes for the soaring natural materials.

Consumer runs on such items as nylons and pillowcases have caused some mills to withdraw these items several times within a month, pending posting of higher prices.

Dairy Products

Per capita production of manufactured whole milk products for 1948, in terms of milk equivalents, was the lowest for the last 18 years, according to the Bureau of Agricultural Economics. The products that achieved record high output in 1948 included nonfat dry milk solids, plain condensed skim milk, crude milk sugar, ice milk and frozen custards.

Oregon ranked eighth in American cheese production for 1948, California was third in evaporated whole milk (324,007,000 pounds), ranked third in ice cream (40,039,000 gallons), and fourth in skim milk products. All of the major states that produce spray-dried nonfat milk solids showed gains from 1947 to 1948 except California, which was down 5%, Idaho, which was fractionally lower, and Oregon, which declined 45%. California was the leading casein producing state in 1948, and third in condensed skim milk (bulk goods).

Working Day and Night to Serve You

Here at Ryerson we're making an all-out effort to ease your steel-buying problems as much as possible.

No, we can't deliver all the steels you may need. Critical shortages growing out of the international situation prevent that. But what we can do—what we *are* doing is working shoulder-to-shoulder to see that you get every *available* item required as quickly as we can get it to you.

In spite of unbalanced stocks, we still have fairly good overall tonnage on hand. And the services of our experienced specialists may prove highly valuable in determining alternates, when the steels you need aren't readily available.

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STAINLESS—Allegheny bars, plates, sheets, tubes, etc.
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Small Parts Production *Pepped Up* With Automatic Screw Machines

AUTOMATIC screw machine production methods have replaced sand casting of faucets and parts at Ravenna Metal Products Corporation, Seattle, Washington. That change is saving the firm about $2.00 per faucet in raw material and production costs.

When an initial order from Hotpoint was awarded for 15,000 units, sand casting was first considered as the manufacturing method. Plant men, however, soon realized that these units could not possibly be turned out in the specified contract time by that method.

Seattle did not have sufficient foundry capacity to do it quickly enough, particularly in view of a normally high percentage of rejects from porous castings. Valves and incidental parts could not be made fast enough on turret lathes and milling machines. Something had to be done immediately to find an alternate production method to cut costs and pep up production.

So they engineered a new design, an almost 100% screw machine made product. Now, new fixtures for Hotpoint dishwasher sinks look the same as the old ones (sand cast). Valves are identical, and supply tubes carry just as much water.

But the new units weigh only 10 ounces, against their former cast weight of 3 pounds, 2 ounces. That in itself means (1) a saving of about $1.00 in brass metal, and (2) 2½ pounds of shipping weight per faucet saved.

With this new production method there is practically no loss, no waste, and very few rejects. What rejects do occur can be saved. Labor costs have been cut. And by manufacturing on the premises instead of having parts cast in a foundry, considerably better production control is assured.

During engineering, which is performed by Al Moen, inventor of these faucets, limits of the eight Brown & Sharpe screw machines had to be kept in mind. Largest parts which could be used were limited to 1-5/16 inch hex, and 1½ inch round bar. These so-called "limits" imposed no restrictions, inasmuch as the company wanted to hold minimum size on the new fixtures.

"You can't beat screw machines for production of metal parts," Moen points out. "Fewer tools are needed for making the faucets, and yet closer tolerances are possible. Where parts fit together, our closest tolerances are two ten-thousandths of an inch; loosest tolerance is plus or minus five thousandths."

The 15/16 inch brass ball valve handle is an interesting piece of engineering. It was found that there was no accuracy to a 15/16 inch cast or forged ball. So the handle ball was turned on a 2G automatic screw machine. Sections were milled out of flat brass bar and the two parts silver soldered together. The .015 wall which holds the halves of the ball in alignment is removed after solder assembly

Seattle plant cuts costs six ways by re-designing brass fixtures for 100% screw machine manufacture. Changeover assures better production control.

WHEN Ravenna Metal Products Corp., Seattle, Washington, switched their faucet manufacturing process from sand casting to automatic screw machine production, these benefits resulted:

1. Overall saving amounted to about $2.00 per faucet.
2. Raw material cost was reduced by about $1.00.
3. Weight of the finished product was dropped 2½ pounds.
4. Rejects suddenly became very few.
5. Labor costs were considerably lessened.
6. Shipping costs were drastically reduced (3 lbs., 2 ozs. vs. 10 ozs.).
7. Polishing costs were way down.
8. Quality control during the production stage was greatly increased, since parts manufacture was done on the premises rather than in an outside foundry.

This progressive action does not necessarily herald the doom of foundry production, but it does serve to (1) point out new uses for automatic screw machines, (2) indicate new manufacturing possibilities, and (3) show that just because grandpa did it "this way" (i.e., sand casting) it may not be the cheapest, the fastest, or the most profitable way to do it.

of the sphere and the handle. The finished part looks solid, as though it had been made of one piece.

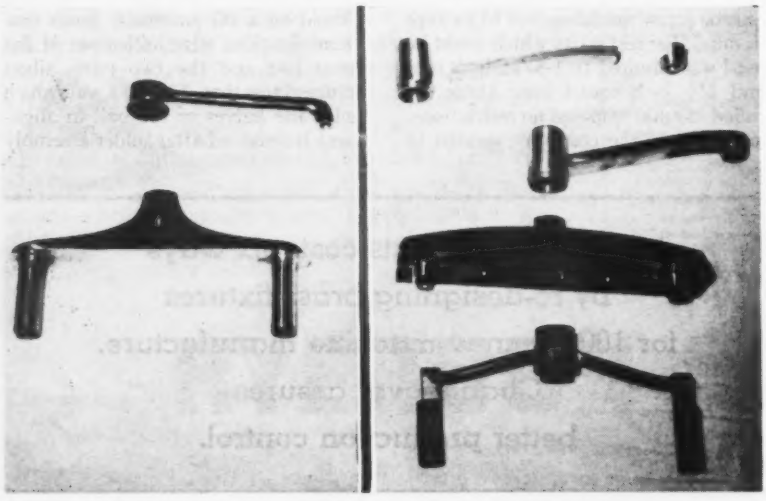
A study of the Moen valve, model 22H, used on the Hotpoint sinks, is revealing. Everything is screw machine made except the body shell and handle (which are die cast in order to include the Hotpoint insignia, etc.), the spout (which is extruded tubing) packing and sealing rings, and a small anchor. Basically, all models of the single handle faucet fixtures are the same, but certain changes had to be made in design to match Hotpoint equipment.

From a screw machine standpoint the swing spouts are notable. Nearly all such spouts are cast, but they are difficult to cast and to core, besides being heavy. Some swing spouts are made in two parts and the sides soldered together, but that leaves a long, unsightly seam.

The Moen swing spout is made of three parts, an extruded tubing in the middle, with screw machine made sections on each end. Outer end of the spout is made from 1 inch round brass bar stock, by standard manufacturing procedure. The inner end is made on screw machines from 1-5/16 inch brass tubing.

The two ends are brazed together on a piece of ½ inch by 1 inch rectangular brass tubing. Polishing time on these ornamental-looking spouts is reduced to practically nothing.

Deck type swing spout faucets used to look like the one on the left, when they were sand cast. Now they look like the one on right, made entirely on screw machines with parts brazed together. Casing and handle are die-cast, to include trade mark insignia.



How They Do It

Most parts are built with standard screw machine tooling, though there is one special shop-built swing tool, to machine the seal ring groove. Most screw machine made parts can not be seen; they are hidden beneath an outer escutcheon.

Each faucet body is machined on a 2G Special out of 1⅜ inch round brass bar stock. The cylinder inside is of 1 inch round 420 stainless steel. Remainder of the body assembly is ⅜ inch tubing cut off to length. Spout nuts are also made on the 2G Special.

Tail pieces, from 13/16 inch round bar, the body nut, from 1-3/16 inch round brass bar, and the stem, from 9/16 inch round brass bar, are all machined on 2G automatic screw machines. The tail pieces then go through an offset, hollow milling operation performed on a Brown & Sharpe wire feed screw machine.

Body nuts also go through a second operation on the same kind of machine, using special multi-surface counterbores to machine all inside diameters at once. The internal "O" ring seat in the body nut is finished with extreme accuracy with the specially designed shop-made swing tool mentioned above. Stems go through a series of shaving operations to maintain diameter tolerances down to two ten-thousandths.

Piston screws, of ⅜ inch bar, and packing nuts, of 9/16 inch bar, are made complete in one operation, including slab milling on O. G. Brown & Sharpes. And so it goes for each screw-machine-made part. Now that the public is beginning to accept single handle faucets, these automatic screw machines are kept busy making them.

Who They Are

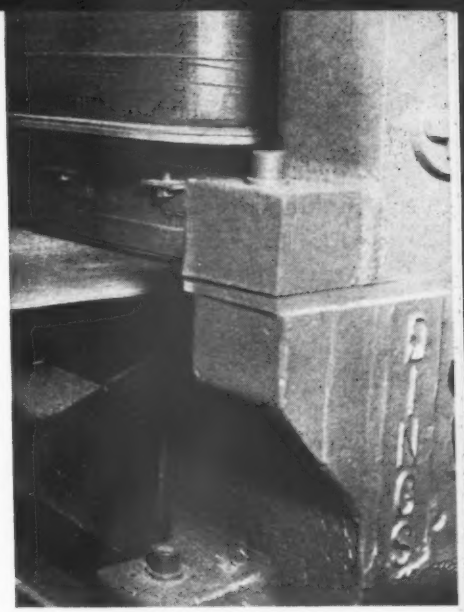
Ravenna Metal Products Corporation does a $500,000 a year business. The plant has approximately 20,000 square feet of working area. They employ between 55 and 60 people. And they employ automatic screw machines wherever possible.

Officers of the company are: Kemp O. Hiatt, Pres., Henry L. Johnson, Vice-President (Executive Northwestern Fire Association), Bertha Arbow, Secty.-Treas., and Kirk Schlamp, plant superintendent.

Magnetic Separation

extracts

Minerals for Industry From Mining Debris



Close-up of magnetic separator. You can just see the edge of cross-belt, flush with edge of the magnet. At right angles to it is the main belt, carrying black sand.

A COMBINATION of the atomic age and ingenuity of modern technology has developed a resource in the heavy, black sand of central Idaho's creeks, which was overlooked by gold prospectors of the Nineteenth Century. Mineralogists have discovered that this debris of placer mining contains uranium and thorium as well as other sought-after minerals of modern industry.

U. S. Atomic Energy Commission recognizes that an ingredient of Idaho black sand, monazite sand, contains 1-1½ per cent uranium and up to 2½ per cent thorium. This yellowish, resinous-looking sand also contains a number of the rare earth elements.

In 1947, the potentialities of black sand prompted the Idaho Bureau of Mines and Geology to conduct a survey of black sand in the state. Bureau mining engineer W. W. Staley points out, "At least 100,000,000 cubic yards of old gravel in state placer-mining districts may be opened for black-sand exploitation."

This figure represents only yardage gone over for gold one or more times by the largest dredging operations in the state. Some areas have been dredged but not recorded.

Thousands of yards of black-sand-bearing gravel have never been touched because of low gold content.

First industry to cash in on this resource is Rare Earths, Inc., McCall, Idaho, which to date has shipped 40 tons of monazite sand for further processing in Chicago. At present, the company is developing and exploring the thousands of cubic yards of gravel leased in old placer workings of the Warren-Burgdorf mining area.

Valuable minerals have been known in black sand for years, but heretofore miners have had difficulty in separating all of them.

Dings magnetic separators proved to be the answer to this problem.

At the mill, dry black sand is fed onto a 50-foot-long endless belt from a storage hopper and then passed under seven magnets of different intensities. Between each magnet and the main belt is a smaller endless belt traveling at right angles.

Each small belt is flush with the bottom of one magnet and a short distance above the black sand as it is carried by. At the end of each cross-belt is a bin to hold the separate taken from the sand by a given magnet.

Although the first magnet has no electrical properties, it does have sufficient attraction to separate magnetite from the sand. It may someday be used in iron blast furnaces of the West. At present, magnetite is stock piled.

The next magnet, an electro-magnet, has a weak induced field to separate the ilmenite fraction of black sand, which contains titanium oxide used in armor plate alloy and as a pigment in paints. Pure titanium can be obtained from ilmenite for welding-rod coating.

Third and fourth, stronger electro-magnets draw garnet from the sand, valuable in the manufacture of abrasives.

Monazite sand is only slightly magnetic, so the next three magnets at maximum intensity are needed to draw it from the remaining black sand.

The non-magnetic portion of black sand is received in a final bin of the separator and is saved for further processing. Zircon, mica, feldspar, cinnabar and gold are in this fraction.

This succession of magnetic separators removes a number of minerals from black sand and separates them completely, by use of varying powers of magnetic fields.

For flexibility of operations in making diverse small parts, you'll want to know about this—

Completely Automatic Parts Handling System

using a six-belt conveyor and elevator network

National Motor Bearing Co. had a materials handling problem at its Redwood City plant. Then Lloyd Johnson, president, rolled up his sleeves and developed this system.

By GEORGE CORSI
Plant Engineer
National Motor Bearing Co., Inc.
Redwood City, Calif.

COMPLETE FLEXIBILITY of manufacturing operations is demanded in the fabrication and manufacture of metal components that go into assembly of precision oil and fluid seals. This flexibility is necessary because of a wide variation in sizes, metal thicknesses, and various shapes of our cups, flanges, and stampings.

Hence, we have developed a type of manufacturing operation that

1. Reduces handling of piece parts,
2. Minimizes storage of semi-finished parts,
3. Reduces paper work, and
4. Offers the fastest delivery.

Series of Operations

Production runs on individual presses may vary, from 500 to 1,000,000 parts. Many of these metal parts require multi-operations on a series of three to five dies with each die, progressively, affecting the part until completion.

These progressive dies are designed and built in our shops, with each operation of a predetermined series balanced for the same maximum rate of production. Such engineering allows us to set-up all the dies of a single series at one time, and pass the inter-operation parts from press to press until the part is completed and ready for delivery to our assembly department.

To help accomplish the greatest mechanical efficiency possible with this method of operation, we designed and had installed a custom-made materials handling system. It consists of a 150-foot six-belt conveyor and elevator network.

Our arrangement provides six traveling belts immediately behind our presses. Three belts go in one direction and three belts in the opposite direction. Adjacent to each punch press is an elevator mechanism, adjustable to deposit parts on any of the belts selected.

At floor level, the bottom belt travels back in the direction of the raw materials department. That belt is used exclusively to return scrap from the presses to the scrap metal department for baling.

Five Belts Carry Parts

Five belts remain for production operations. Two of them travel opposite the direction of production flow, and three of them travel with the direction of production flow. These five belts are used to transport parts that are deposited on them by the elevators.

As many as five different parts can be carried on one of these conveyor belts at one time, if all the parts are going toward the discharge end and onto the sorting and inspection tables.

When a part is riding any of the belts in transit from one to another punch press for additional press operations, it is separated from other parts on the same belt by shields and guide bars. If two different parts happen to be riding on the same belt, and both parts are to be destined for additional

Parts, previously formed on another press, are swept off conveyor belt and chuted to next operation. →

press operations but on different presses, the part that comes off first is guided to the take-off edge of the belt.

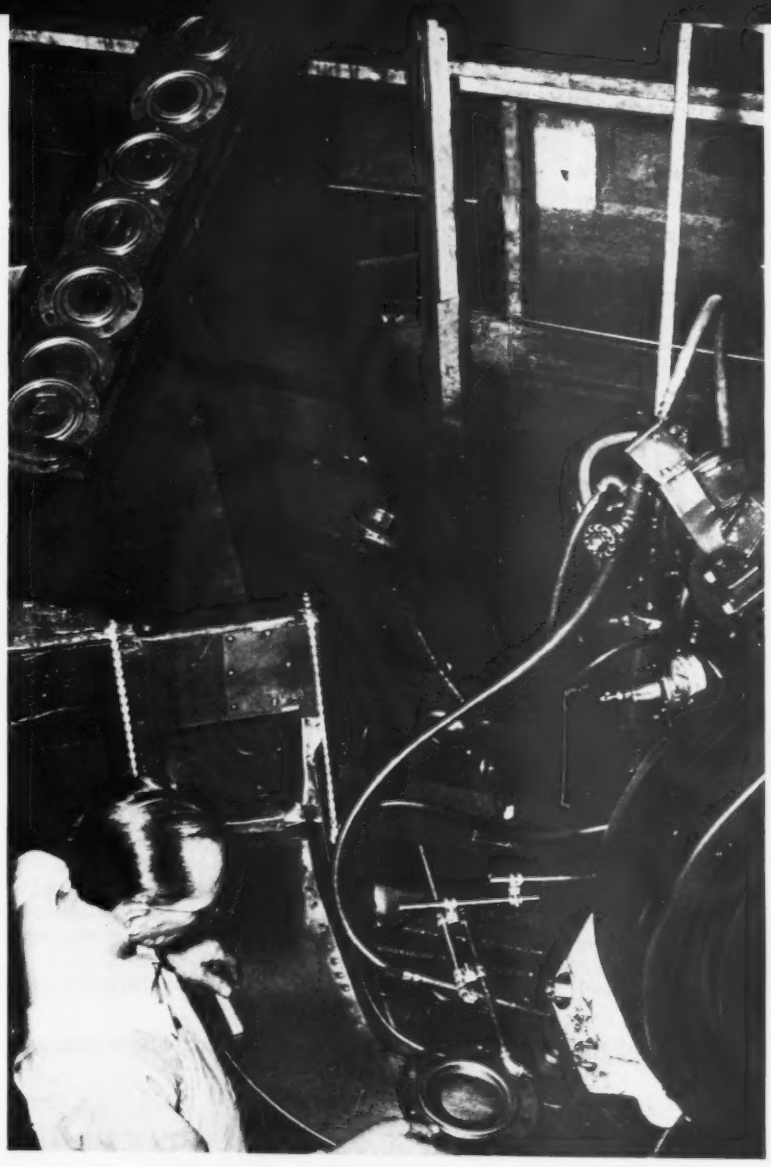
This mechanized section of our punch press department consists of nine presses of various tonnages. These presses are located parallel to each other and at an angle to the line of conveyor travel. Behind each press discharge chute is an inclined elevator, previously mentioned. These elevators are of special design; they are adjustable to discharge at any one of the five belt levels.

Belts that travel opposite the flow of production are used only when semi-finished parts are required to travel between presses. The three belts that travel with the flow of production are used to carry (1) semi-finished parts between presses for additional operations, or (2) completed parts to the final take-off end where they are discharged for inspection and sorting.

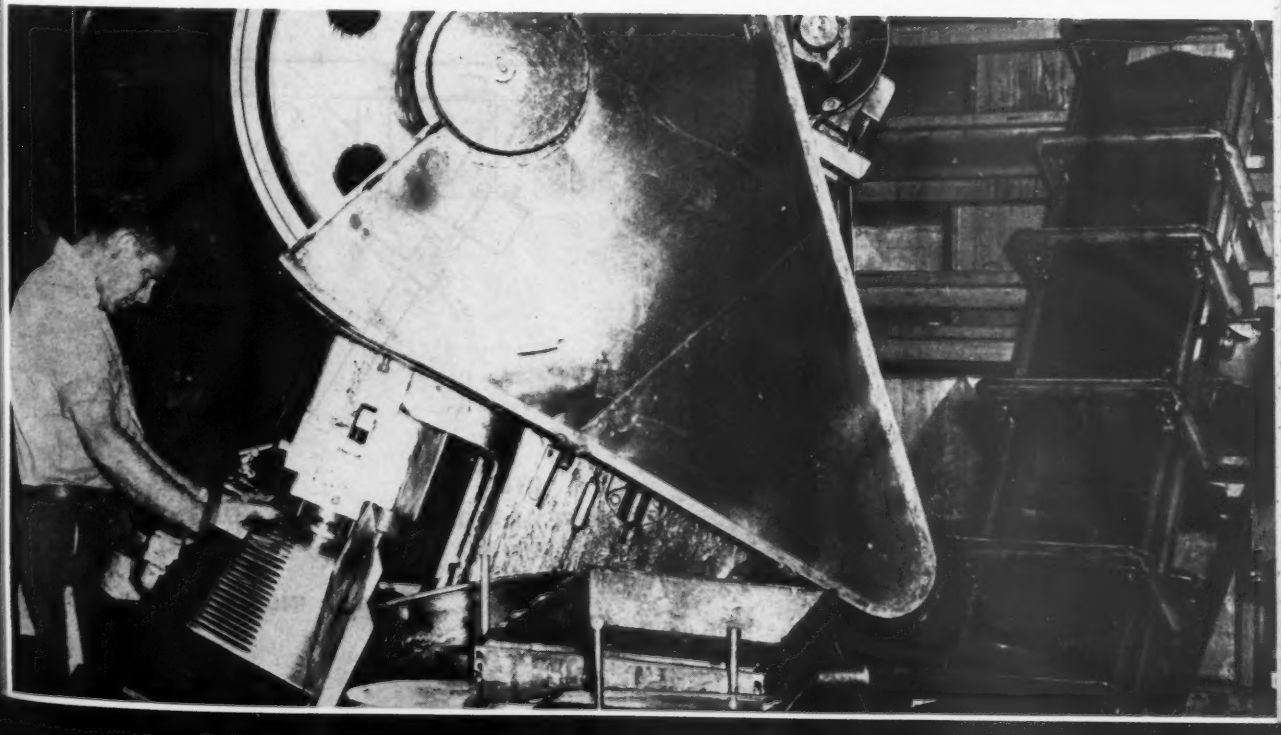
A good example of an average multi-operation job set-up is the one required to manufacture our part No. N-290. That is the outer case for the rear axle oil seal on Chrysler automobiles.

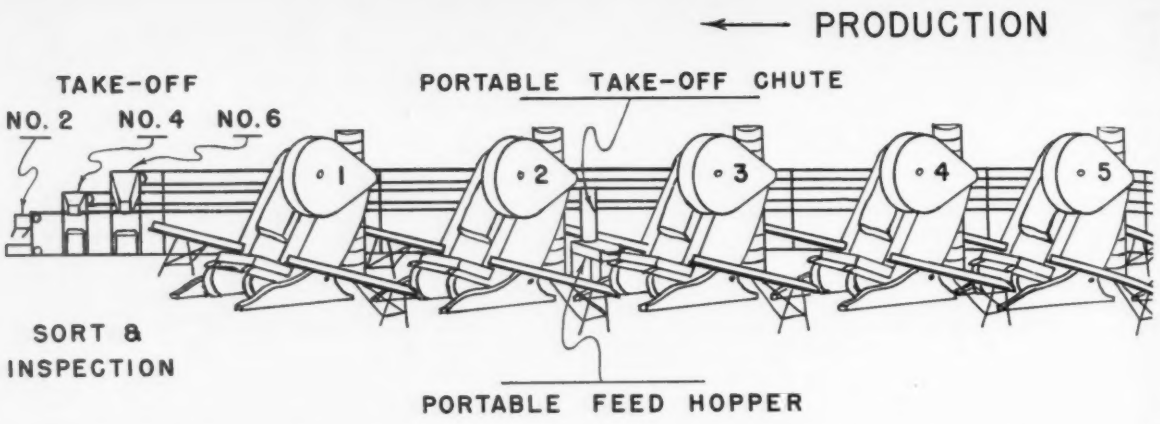
It is a flanged type cup, about 4 5/8" overall diameter, with a draw .781" high and five 25/64" holes pierced around the flange. A 2-3/16" hole is pierced in the flange's center. Material used is cold-rolled sheet WD 1010-1020, .060-.062" thick.

N-290 part is produced in three



First forming operation. Punched parts go up elevator on right; scrap is conveyed out at bottom. ↓





Front view of National Motor Bearing Co.'s Redwood City, Calif. punch press department.

separate operations on three separate dies:

First die operation is blank and first-form, from strip stock. That operation requires a minimum press capacity of 90 tons.

Second die operation is re-form and set. That also requires a minimum of 90 tons press capacity.

Third die operation is perforate, trim, and pierce. For that one, a 60-ton press is sufficient.

Producing this job on a minimum time basis would mean that we would schedule it into the punch press line only when three presses of the required tonnage are available simultaneously.

For example, we could schedule it as follows:

Operation No. 1 in press No. 4.
Operation No. 2 in press No. 7.
Operation No. 3 in press No. 3.

Our production sequence would then operate like this:

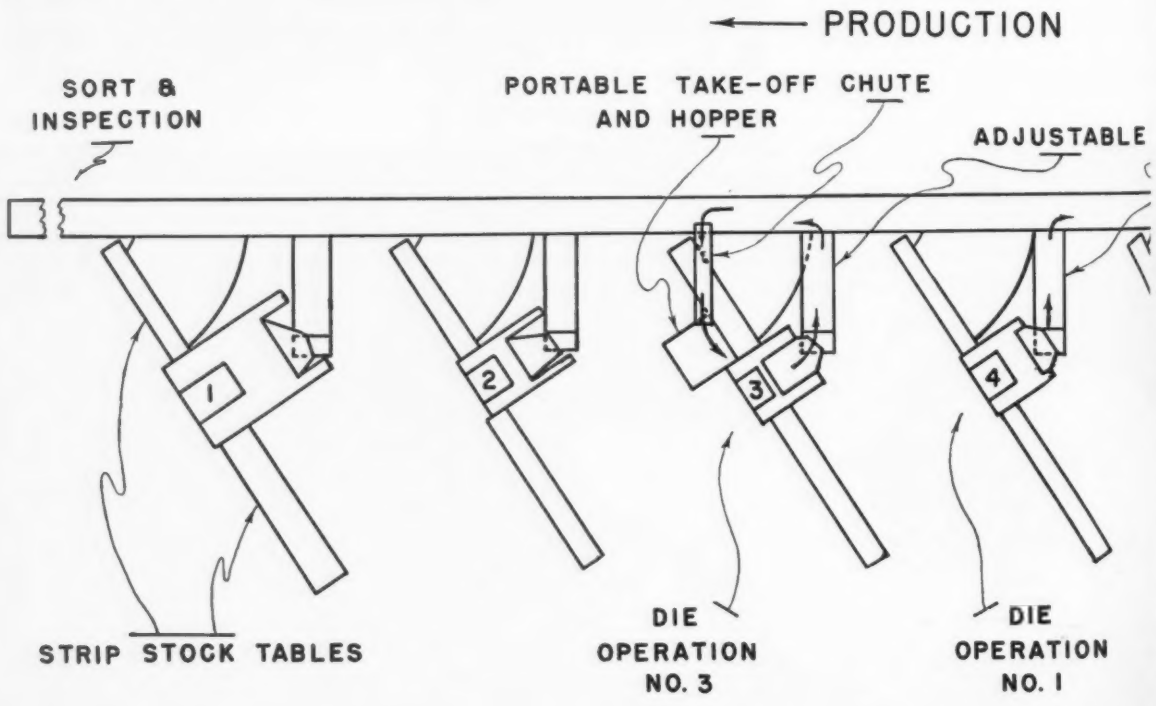
Properly selected strip steel, slit to the required double-run width, is delivered on steel wagons to press No. 4, where the first operation takes place. Each strip is fed through the die, and the scrap pattern is then slid down the scrap chute to the bottom conveyor belt. Automatically, it is transported to the scrap metals department.

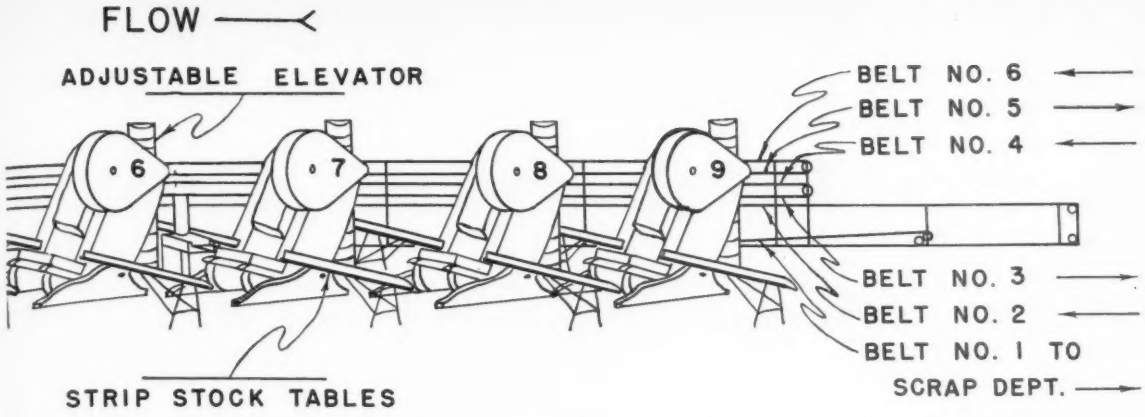
Metal parts that discharge from the die are blown by compressed air through an orifice in the back of the press, where they slide down a chute and land in the elevator hopper.

The elevator then picks up that part, carries it up toward the conveyor system, and discharges it on either belt No. 3 or belt No. 5 (see drawing). Both these belts run in the same direction, and either could be used for this purpose.

For purpose of illustration, we will assume that belt No. 5 is already loaded with production items from other presses, so we adjust the elevator to deposit our N-290 blanked and formed part on belt No. 3.

Top view of the same department's parts handling system. First operation is completed on





Nine presses are lined up and served by the conveyor belt and elevator system shown here.

That part will then be carried opposite to the flow of production until it arrives at the adjustable take-off chute set for press No. 7, ready for the second operation. At this point we set a sweep-off bar across part of the belt, in such a manner that duplicates of this part only will be removed from the belt.

Parts will then slide down the take-off chute and land in the portable feed hopper for press No. 7. These feed hoppers are large enough to absorb any quantity unequalities that may arise between such multi-operations.

From this feed hopper on No. 7 press, the part is fed into the die on that press, stamped, blown through the press, down the chute, and discharged into the elevator hopper.

Then the elevator picks up the reformed and set part, carries it up to and discharges it on belt No. 4. (Belt No. 2 or No. 6 might be used instead, also depending upon production flow from other presses.)

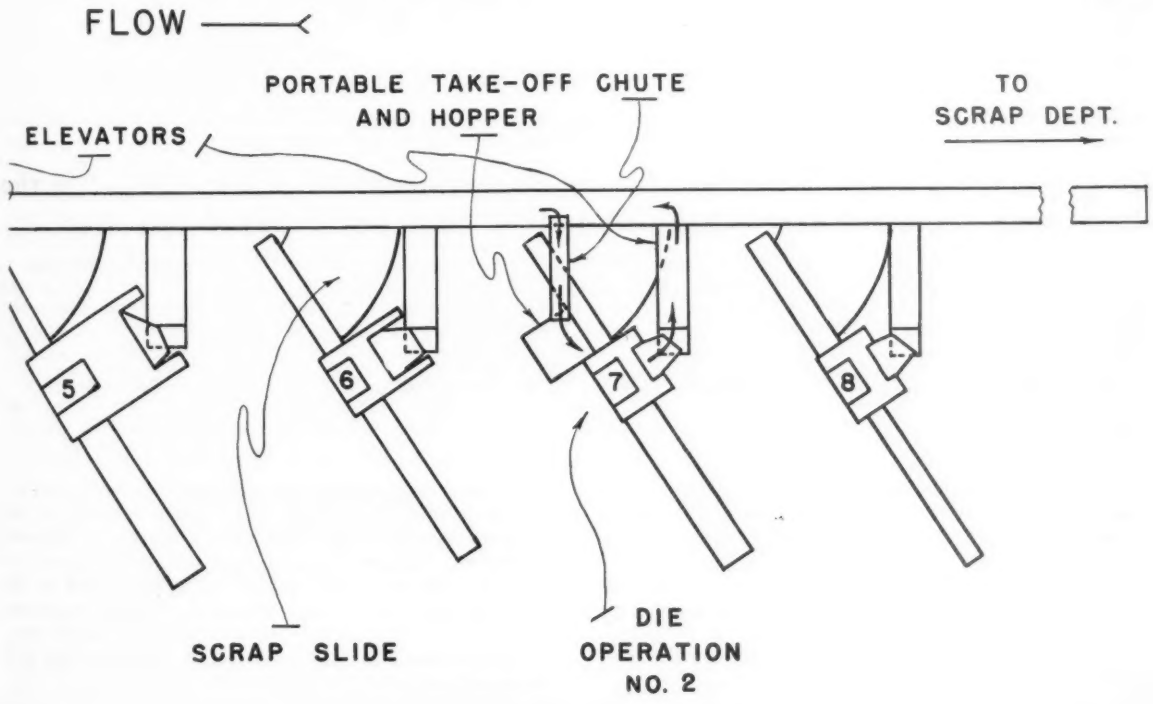
On belt 4 the twice-stamped part rides in the opposite direction from its previous trip, this time going with the direction of production flow, until it arrives at press No. 3. There is where the last stamping operation will be performed.

At the take-off chute for press 3 we again set the sweep-off bar to direct those parts down the chute and into the feed hopper for that press. Parts are then fed into the die, stamped, and they go out the back of the press into the connected elevator hopper.

Up they go again, until they are deposited on belt No. 2. (Again, either belt 4 or belt 6 could be used instead. Choice is flexible.) Finished parts are then carried on down to the end of the line, where they are discharged down the end chute and onto the inspection and sorting table.

As parts are inspected and sorted, they are labeled and loaded into bins for delivery to pre-assembly stores.

press No. 4, second operation on No. 7, third on No. 3. Parts move both ways automatically.



Installment No. 8 . . . Western Industry's survey of operating methods and systems

Let's see how far the West has gone in adopting

WAGE INCENTIVES

WHATEVER the executives or supervisors of industry in the West may think, incentive systems are here to stay. And enough evidence has accumulated so far to demonstrate the worth of the so-called incentive system in many of the West's leading plants.

But to the person not fully acquainted with all the ramifications of incentives—and who is?—the present situation presents a bewildering barrage of claims and counterclaims for this or that pet theory. In other words, it isn't the headline—"incentive"—that causes the trouble; it's the fine print where the right *kind of incentive* (Standard Hour, Piece work, Bonus, Sharing Enterprises) for the right *type of coverage* (Direct Labor, Indirect Labor, Supervisory) and with full *recognition of social implications* (that is, individual incentive versus group incentive) makes this all so difficult to fathom.

In spite of the tremendous impetus that has been given to the whole sub-

COMPARATIVE USE OF INCENTIVES

	So. Calif. %	No. Calif. %	Other Western Areas %	Western Plants with Eastern Policies %	Total %
Plants applying incentives	61	38	31	39	36
Incentives based upon Union agreement	24	75	97	100	76
Incentive policies in Manual form	53	25	25	60	35
Coverage:					
1. Direct labor	94	75	75	80	80
2. Indirect labor	53	13	28	100	38
3. Supervisory	65	....	53	60	50
Presentation:					
1. Standard Hour	65	13	28	60	38
2. Piece Work	24	87	55	....	47
3. Bonus	35	....	55	20	41
4. Sharing	12	....	88	20	20
5. Other	....	....	28	....	15
Type:					
1. Individual	62	....	50	40	52
2. Group	38	....	50	60	48

Designations "Western," "Eastern" and "Mixed" indicate whether methods and systems were independently developed in the West, or formulated by eastern management or parent company, or are a combination of both. Numbers indicate number of plants.

Do you employ wage incentives in any department? 66 plants (36%) in the survey reported Yes; 118 plants (64%) have not adopted this idea.

Southern California

	Yes	No
Western Methods	17	11
Eastern Methods	3	4
Mixed Methods	3	1

Northern California

	Yes	No
Western Methods	8	13
Eastern Methods	1	2

Oregon

	Yes	No
Western Methods	6*	18
Mixed Methods	1	1

Western Washington

	Yes	No
Western Methods	19	44
Eastern Methods	1	7
Mixed Methods	1	3

Eastern Washington

	Yes	No
Western Methods	1	2

Idaho

	Yes	No
Western Methods	....	4

Utah

Yes	No
5	12

Colorado

	Yes	No
Western Methods	5	1

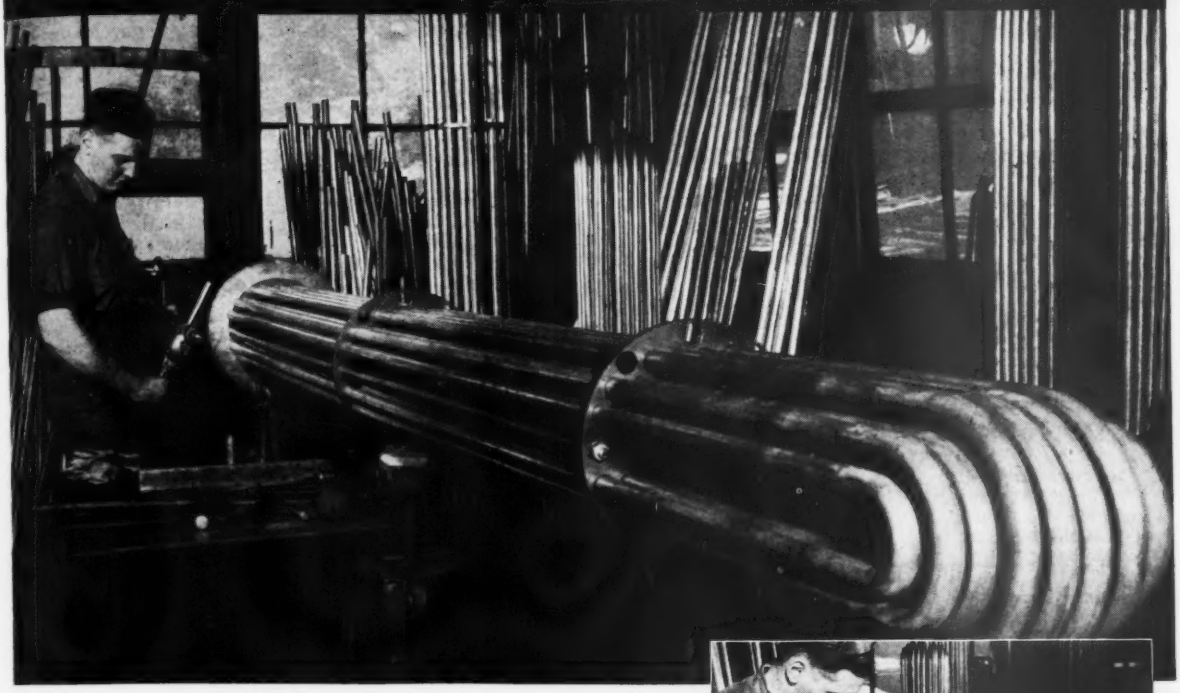
Western Industry's survey has been carried on in cooperation with eight universities in the West and a number of management consultants, to assemble facts concerning actual operating conditions in industry in the West.

Reports were obtained from 211 plants in California, Oregon, Washington, Idaho, Utah and Colorado through a detailed questionnaire, covering division of functions, organization charts, communications, manufacturing programs, controls and budgets.

In order to determine the comparative efficiency of industry in the West and the older industrial areas of the country, the reporting plants were designated as "Western Methods," "Eastern Methods" and "Mixed Methods," to indicate whether their systems were developed in the West, whether they operated under programs emanating from Eastern home offices, or were a mixture of the two.

Last month time study was covered. The next topic will be quality control.

REVERE COPPER TUBE
of Special Bending Temper . . .



. . . saves bending time, enables WESTERN BLOWER CO. to produce neater, more uniform tube bundles.

During the past nine years, Western Blower Co., of Seattle, Wash., has used hundreds of thousands of feet of ⅝" and 1" O.D. Revere Seamless Copper Tube of special bending temper, with .049" wall.

They tell us that in working with this Revere Tube they are able to make large and small radius bends without the slightest difficulty and without heat treating, excepting the smallest 1" radius. This not only saves bending time but, enables them to turn out a better appearing tube bundle . . . an important item with Western Blower as many of their bundles are sold without tanks.

In addition to the above, this company has also used tens of thousands of feet of Revere Cupro-Nickel Tube in heaters where salt water was a problem. For this metal, which is one of the most corrosion-resistant of the copper nickel alloys, can withstand high operating temperatures and is not subject to dezincification.

Have you investigated the Revere metals to see how they might help you with your tube problems? Why not have Revere put the knowledge and experience, gained through years of helping others, to work for you? Call the nearest Revere office today.

REVERE

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Founded by Paul Revere in 1801

230 Park Avenue, New York 17, New York

Mills: Baltimore, Md.; Chicago and Clinton, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Rome, N. Y. Sales Offices in Principal Cities. Distributors Everywhere. Pacific Coast District Sales Offices in San Francisco, Seattle, Los Angeles.

EXPANDING THE TUBE ENDS outside the header of one of the U-bend heat exchangers being turned out by the WESTERN BLOWER CO. Revere products have been used exclusively by this company for many years.

FLARING THE TUBE ENDS over the header. These coils, made of Revere Seamless Copper Tube, of Special Bending Temper, are used in tanks for domestic hot water, in side arm heaters, condensate coolers and converters.

ject of incentives by current inflationary labor trends, and because of the enthusiasm by which the printed word has covered the very real succeseses of incentive procedures in plants of some significance, an interested, albeit still somewhat confused executive may well ask the question: "Are incentives really being used in Western industry? If so, what kind? And to what extent?"

It was to record this actual current progress in the whole incentive field that *Western Industry* included the subject in its survey of operating methods and systems in the West.

From the accompanying summary, briefed from the survey, we may observe figures which give added justification to statements reviewed in prior months on Industrial Engineering practices in the Western States. The summary indicates that the comparatively new Union organizations of Southern California are giving industries an opportunity to apply an obviously well sold program of incentives to almost twice the coverage experienced in the West as a whole.

This, as mentioned before, could be partially due to recent development of

---

Designations "Western," "Eastern" and "Mixed" indicate whether methods and systems were independently developed in the West, or formulated by eastern management or parent company, or are a combination of both. Numbers indicate number of plants.

Are the policies set forth in a manual? 23 plants say Yes; 43 No.

Southern California

	Yes	No
Western Methods	9	11
Eastern Methods	2	4
Mixed Methods	....	4

Northern California

	Yes	No
Western Methods	2	9
Eastern Methods	1	....

Oregon

	Yes	No
Western Methods	3	12
Mixed Methods	....	1

Western Washington

	Yes	No
Western Methods	3	34
Eastern Methods	....	6
Mixed Methods	....	2

Eastern Washington

	Yes	No
Western Methods	1	....
Mixed Methods	....	1

Idaho

None.

Utah

Yes	No
3	7

Colorado

	Yes	No
Western Methods	....	3

Do your incentives cover direct labor? 53 plants report Yes; 13 No.

Southern California

	Yes	No
Western Methods	16	2
Eastern Methods	3	1
Mixed Methods	3	....

Northern California

	Yes	No
Western Methods	6	4
Eastern Methods	1	....
Mixed Methods	1	....

Oregon

	Yes	No
Western Methods	5	8
Mixed Methods	1	....

Western Washington

	Yes	No
Western Methods	15	17
Eastern Methods	....	5
Mixed Methods	1	1

Eastern Washington

	Yes	No
Western Methods	1	....
Mixed Methods	1	....

Idaho

None.

Utah

Yes	No
3	3

Colorado

	Yes	No
Western Methods	3	1

Do they cover indirect labor? Not so much. 25 say Yes; 41 say No.

Southern California

	Yes	No
Western Methods	9	8
Eastern Methods	3	1
Mixed Methods	2	1

Northern California

	Yes	No
Western Methods	1	5
Eastern Methods	2	....

Oregon

	Yes	No
Western Methods	2	11
Mixed Methods	....	1

Western Washington

	Yes	No
Western Methods	5	27
Eastern Methods	....	5
Mixed Methods	....	2

Eastern Washington

	Yes	No
Western Methods	....	1

Idaho

None.

Utah

Yes	No
2	4

Colorado

	Yes	No
Western Methods	1	3

Do they cover supervisory labor? This is even up. 33 Yes; 35 No.

Southern California

	Yes	No
Western Methods	11	7
Eastern Methods	1	3
Mixed Methods	2	1

Northern California

	Yes	No
Western Methods	....	5
Eastern Methods	1	....

Oregon

	Yes	No
Western Methods	4	10
Mixed Methods	....	1

Western Washington

	Yes	No
Western Methods	11	22
Eastern Methods	1	4
Mixed Methods	1	1

Eastern Washington

	Yes	No
Western Methods	....	1
Mixed Methods	1	....

Idaho

None.

Utah

Yes	No
4	2

Colorado

	Yes	No
Western Methods	....	3

Is your plan characterized as a piecework plan? 31 say Yes; 35 No.

Southern California

	Yes	No
Western Methods	4	6
Mixed Methods	3	....

Northern California

	Yes	No
Western Methods	7	....

Oregon

	Yes	No
Western Methods	2	2
Mixed Methods	1	....

Western Washington

	Yes	No
Western Methods	9	9
Eastern Methods	....	2
Mixed Methods	....	1

Eastern Washington

	Yes	No
Western Methods	1	....
Mixed Methods	1	....

Idaho

None.

Utah

Yes	No
3	....

Colorado

	Yes	No
Western Methods	5	....

PIONEER RUBBER MILLS' New Rayon Braided and Molded Hose Promises Lower Operational Costs

Yes, Jim has really stepped up his efficiency since he's been using "54-40" hose because it's more flexible—easier to handle. Jim's boss gains in another way, too, because the new *engineered* construction of "54-40" hose increases hose life and reduces operating and replacement costs.

ALL-PURPOSE, AIR, BOOSTER, SPRAY, WATER, WELDING HOSE IS STRENGTHENED THROUGH "54-40" CONSTRUCTION

No doubt about it . . . *PIONEER'S method of balanced braiding of rayon yarn is news . . . Good News for hose users. "54-40" means 54 degrees, 40 minutes — the "optimo" or perfect angle for the braiding of rayon yarn on hose. It's the angle of lock that provides hose with the braided reinforcement needed to give* maximum strength, reduced weight, *and* increased flexibility.

Fighting Name Significant

Students of our early Western history will remember the slogan, "Fifty-four forty or fight!" Now it's doubly significant that PIONEER RUBBER MILLS, an old Western firm, is making new history with its "54-40" line of Rayon Braided and Molded Hose by enabling hose users to win the fight against rising replacement costs with a longer lasting hose.

Get the facts about this new "54-40" line now!

Here are a few advantages of the new PIONEER "54-40" line

1. *Greater resistance to inner pressures and kinking.*
2. *Increased flexibility. Rayon fibres do not "stretch" and "buckle" when hose is bent under pressure.*
3. *Longer life, because it's molded in polished steel presses under pressure 5 times greater than is possible in conventional methods of manufacture.*

New Braid Angle Does the Trick

PIONEER RUBBER MILLS shows you what "54-40" means. Note these braid angles.

Treated rayon reinforcement is woven at 54 degree, 40 minute angle, the ideal to provide added strength, reduce weight, increase flexibility.

Here's why "54-40" hose is superior to ordinary rayon or cotton reinforced hose.

When braid is woven at this angle. Too long. Decreases burst, shortens under pressure, kinks easily.

PIONEER RUBBER MILLS will be happy to give you full and complete information about this new line of "54-40" braided and molded hose without obligation.

PIONEER RUBBER MILLS

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the area by large industries which have proposed advanced management techniques. Only 24% of these Southern California incentives, however, have as yet successfully weathered the bargaining table compared with the West as a whole where 76% of the incentives are based upon Union agreement. Wise incentives supervision will be a major factor in maintaining leadership.

The summary indicates that Southern California industries and "Western industries operating under Eastern policies" with 53% and 60% of their incentive policies solidified into manual form are again ahead of the West as a whole with its average of 35%. Since a policy manual can only be set up from an experienced background, and since written policies are consistent and may be critically reviewed, they form the sound basis essential to enduring standards.

Of Western plants which use in-

Designations "Western," "Eastern" and "Mixed" indicate whether methods and systems were independently developed in the West, or formulated by eastern management or parent company, or are a combination of both. Numbers indicate number of plants.

Is your system a standard hour or 100% plan? This idea not developed so widely. 25 plants report Yes; 41 No.

Southern California	Yes	No
Western Methods	11	2
Eastern Methods	2	....
Mixed Methods	1	....

Northern California	Yes	No
Western Methods	1	....
Eastern Methods	....	1

Oregon	Yes	No
Western Methods	1	2

Western Washington	Yes	No
Western Methods	5	9
Eastern Methods	2	2
Mixed Methods	....	1

Eastern Washington	Yes	No
Western Methods	1	....

Idaho — None.

Utah	Yes	No
	3	....

Colorado — None.

Is it an individual incentive plan? About even. 28 Yes; 26 No.

Southern California	Yes	No
Western Methods	8	3
Eastern Methods	2	....
Mixed Methods	2	....

Northern California	Yes	No
Eastern Methods	....	1

Oregon	Yes	No
Western Methods	2	3

Western Washington	Yes	No
Western Methods	....	2
Eastern Methods	9	6
Mixed Methods	....	1

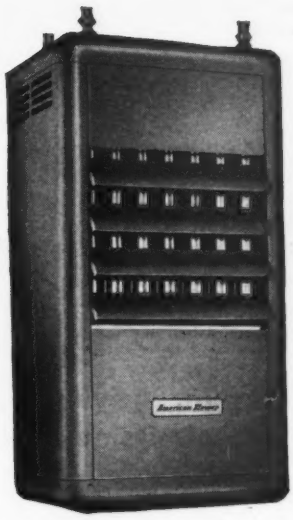
Eastern Washington	Yes	No
Western Methods	1	....

Idaho — None.

Utah	Yes	No
	3	....

Colorado	Yes	No
Western Methods	3	....

Ceiling-mounted Vertical Unit Heater for steam or hot water systems



Self-contained Gas-Fired Unit Heater for wall mounting

Wall-mounted Venturafin Unit Heater for steam or hot water systems

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If you have a steam or hot water heating system, choose a Vertical or Venturafin model for either wall or ceiling mounting. They're modern, with fan and motor completely enclosed inside the attractive steel cabinet. They're durable, with heavy-duty coils for steam or hot water. They're economical to buy and operate.

On the other hand, if your requirements call for a self-contained gas-fired unit, you'll find American Blower Gas-Fired Unit Heaters a profitable investment. They're handsomely enclosed in a sturdy steel casing that's bonderized against rust and corrosion. The heat exchanger is made of aluminized steel for long life.

American Blower Unit Heaters provide quick heat that can be placed where you want it, and in the quantity required. Heat is uniformly distributed in the working zone and easily maintained within a close range.

This pays off for you in more comfortable final temperatures, resulting in better working conditions throughout your plant.

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Division of AMERICAN RADIATOR & Standard Sanitary CORPORATION

YOUR BEST BUY AMERICAN BLOWER AIR HANDLING EQUIPMENT

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centives, 80% apply them to direct labor, 38% to indirect labor, and 50% to supervisory labor. This is roughly typical of all the areas with Southern California again having a slightly higher coverage than other sections of the West.

Though group and individual incentives appear to be used about equally, the method of presentation differs quite widely. The summary would indicate that in general, Western incentives are presented to the participants averaging 47% piece work, 41% Bonus, 38% Standard Hour, 20% Sharing, and 15% other plans.

The trend for the newer incentives seems to be toward the "Standard Hour" presentation, as indicated by 65% of this type in Southern California plants and 60% in plants under Eastern policies. The Standard Hour plan has the psychological advantage in that participants are induced to evaluate their ever changing jobs by the hours of work content directly, rather than by a particular dollar amount as used in piece work or some indirect calculation as in a Bonus or Sharing Plan. When a job change is made in a Standard Hour Plan, the operator can actually see the removal or addition of work hours and can understand changes in the allowed hours for his operation.

Designations "Western," "Eastern" and "Mixed" indicate whether methods and systems were independently developed in the West, or formulated by eastern management or parent company, or are a combination of both. Numbers indicate number of plants.

Do you operate under a group incentive plan? Reports are about evenly divided. 26 plants say Yes; 28 No.

Southern California

	Yes	No
Western Methods	5	6
Eastern Methods	4	....
Mixed Methods	1	1

Northern California

	Yes	No
Western Methods	1	....

Oregon

	Yes	No
Western Methods	3	2

Western Washington

	Yes	No
Western Methods	11	2
Eastern Methods	....	2
Mixed Methods	....	1

Eastern Washington

None.

Idaho

None.

Utah

Yes	No
2	....

Colorado

	Yes	No
Western Methods	2	....

Do you use a bonus plan? This not quite so popular. 27 say Yes; 39 No.

Southern California

	Yes	No
Western Methods	6	2
Mixed Methods	....	1

Northern California

None.

Oregon

	Yes	No
Western Methods	3	3

Western Washington

	Yes	No
Western Methods	7	7
Eastern Methods	1	2
Mixed Methods	....	1

Eastern Washington

	Yes	No
Western Methods	2	....
Mixed Methods	1	....

Idaho

None.

Utah

Yes	No
7	1

Colorado

	Yes	No
Western Methods	1	1

Is your method characterized as a sharing plan? 13 Yes; 53 No.

Southern California

	Yes	No
Western Methods	2	6
Eastern Methods	1	2
Mixed Methods	1	1

Northern California

None.

Oregon

	Yes	No
Western Methods	2	2

Western Washington

	Yes	No
Western Methods	6	6
Eastern Methods	....	2
Mixed Methods	....	1

Eastern Washington

None.

Idaho

None.

Utah

Yes	No
1	—

Colorado

	Yes	No
Western Methods	1	1

Is it characterized as any other kind of plan? 10 Yes; 56 No.

Southern California

	Yes	No
Western Methods	....	3

Northern California

None.

Oregon

	Yes	No
Western Methods	....	2

Western Washington

	Yes	No
Western Methods	10	13
Eastern Methods	....	2
Mixed Methods	....	1

Eastern Washington

None.

Idaho

None.

Utah

None.

Colorado

None.

Is your incentive predicated upon union agreement? 50 Yes; 16 No.

Southern California

	Yes	No
Western Methods	4	13
Eastern Methods	3	3
Mixed Methods	1	2

Northern California

	Yes	No
Western Methods	6	6
Eastern Methods	1	....

Oregon

	Yes	No
Western Methods	11	9
Mixed Methods	2	....

Western Washington

	Yes	No
Western Methods	24	14
Eastern Methods	6	2
Mixed Methods	....	3

Eastern Washington

	Yes	No
Western Methods	2	1
Mixed Methods	....	1

Idaho

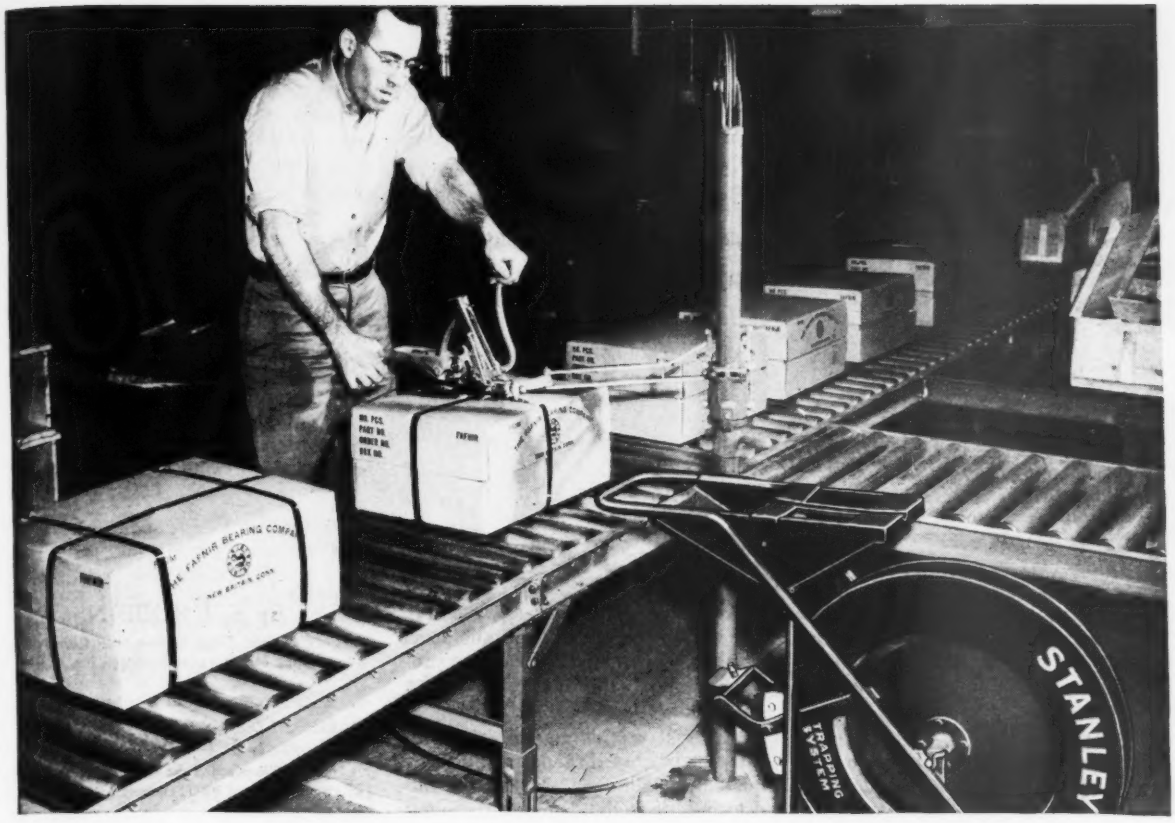
None.

Utah

Yes	No
7	5

Colorado

	Yes	No
Western Methods	4	2



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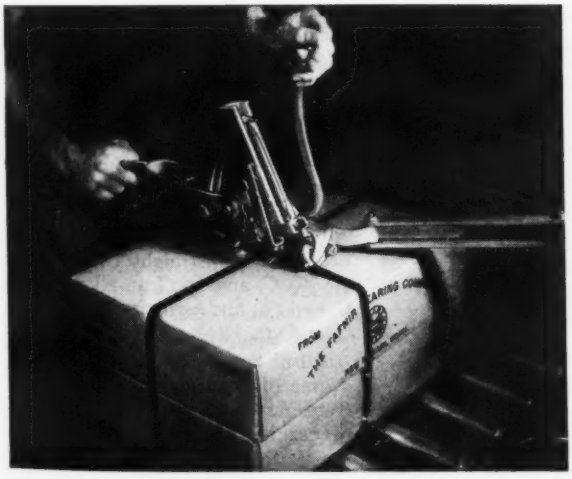
— Says The Fafnir Bearing Co.



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Second in a Series

IMPROVING MACHINABILITY by heat treating steel

• This series started last month (see page 52 of *Western Industry* for September) with a discussion of machinability and general benefits resulting from heat treating.

By F. J. ROBBINS
President, Sierra Drawn Steel Corp.
Consulting Metallurgical Engineer, Los Angeles

and

J. J. LAWLESS
Metallurgist for the Manufacturers of PROTO tools

IN CLASSIFICATION II, Figure I, carbon content is at an optimum level in the straight carbon steels of .25% to .35% C. producing the best ratio of strength to ductility in the air-cooled condition.

The introduction of alloy into the steel analysis results in higher ductility characteristics and such steels are no longer optimum unless other factors are controlled to provide no change in tensile strength.

Consequently, the carbon content in the alloy grades is at an optimum level at about 0.20% to 0.25% C. to produce the best ratio of tensile strength to ductility.

Material in this classification can often be machined economically without either thermal treatment or cold drawing, depending upon air cooling from rolling mill temperatures or forging temperature to produce a normal structure predominantly ferrite plus pearlite of low strength in the carbon grades; but pearlite becomes "finer" and stronger as alloy is introduced.

Such structures also result from standard normalizing heat treatment, that is, heating to austenitizing temperature and air cooling. However, normalizing after forging should always be employed to improve the uniformity of the structure, and cold drawing may be specified for some requirements for mechanical reasons.

The Classification "III," shown in Figure I, includes the straight carbon steels of 0.35% to 0.55% C. content; and lean alloys of 0.25% to 0.35% C. content; and the higher alloys of somewhat lower carbon content. It is in this Classification "III" that thermal treatments become important.

Classification "IV," shown in Figure I, covers straight carbon steels 0.55% C. and up; lean alloys 0.35% C. and up; and higher alloys of 0.25% C. and up.

All of these steels are subject to a degree of hardening when air-cooled from austenitizing temperatures, and the carbides occur in the stronger pearlite (bainite), or in some cases, some martensite may form.

In this classification the steels always require thermal treatment to facilitate machining.

Figure I. MACHINABILITY CLASSIFICATION FOR VARIOUS RANGES OF CARBON AND ALLOY CONTENT IN STEEL

CLASS.	DUCTILITY TENSILE RELATION	CARBON STEELS	LEAN ALLOY STEELS	HIGH	TREATMENT POSSIBILITIES
I	Ductility ↑ Tensile ↓	Low Carbon, Open Hearth Bessemer, Etc.	.....	.....	Cold Drawing: Water Quenching
II	Ductility ↕ Tensile ↕	.25% to .35% C	.20% C	.....	None.
III	Ductility ↓ Tensile ↑	.35% to .55% C	.25% C	.20% C	Anneal to Lamellar Pearl.: or Part. Spheroidize, Cold Dr.
IV	Ductility ↓ Tensile ↑↑	.55% C Up	.35% C Up	.25% C Up	Part to fully Spheroidize, Cold Dr.

Figure 2. AVERAGE PHYSICAL PROPERTIES OF C-1018 IN THE HOT ROLLED, COLD DRAWN, AND WATER QUENCHED CONDITION

	HOT ROLLED	COLD DRAWN	WATER QUENCHED 1625°F
TENSILE STRENGTH psi	69,000	78,000	109,000
YIELD POINT psi	47,000	53,000	85,000
ELONGATION % in 2"	30%	23%	7%
REDUCTION IN AREA %	58%	54%	23%
BRINELL NUMBER	143	165	225

Data from Ryerson Alloy Steel Reference Book.

Figure 3. AVERAGE PHYSICAL PROPERTIES OF C-1045 AND C-1085 ANNEALED TO 100% PEARLITE, SPHEROIDIZED 25%, AND SPHEROIDIZED 100%

	C-1045			C-1085		
	LAMELLAR PEARLITE	25% SPHEROID. PEARLITE	100% SPHEROID. PEARLITE	LAMELLAR PEARLITE	25% SPHEROID. PEARLITE	100% SPHEROID. PEARLITE
TENSILE STRENGTH psi	87,400	85,700	82,500	119,540	93,150	104,820
YIELD POINT psi	51,900	43,050	42,750	55,300	43,150	45,940
ELONGATION % in 2"	.....	.....	.....	19.8%	21.3%	27.4%
REDUCTION IN AREA	47.5%	49.5%	56.0%	9.5%	17.5%	20.0%
BRINELL NUMBER	186	180	171	197	183	180

At this point it will be worthwhile to digress somewhat to discuss the microstructural aspects that have an effect upon the machinability of steel. Generally speaking, those microstructural constituents which may be associated with machinability are:

1. Ferrite—pure iron crystals, low in strength and high in ductility.

2. Pearlite—crystals containing laminations of pure iron and iron-carbide. In the higher carbon steels the proportion of pearlite to ferrite is high. Pearlite exhibits higher tensile strength and is relatively low in ductility.

3. Spheroidal cementite—pure iron-carbide; very hard and abrasive; owing to its shape this constituent adds very little to the strength of the structure.

Ferrite and pearlite form most readily upon slow cooling from the temperature at which carbon is in complete solution. In such a cycle, transformations in which pearlite and ferrite form, occur at a temperature roughly between 1200° F. and 800° F.

Time required for the transformation from austenite to pearlite and ferrite varies with the analysis, being relatively short in the case of carbon steels. Some alloying materials tend to slow the transformations and in higher alloys several hours may be required.

The delaying effect of alloy content in steel upon the transformation time has a considerable effect upon the economy of annealing cycles and should be given due consideration in selecting the material for a specific application.

Within the area of Classification "III," Figure I, we find that treatment designed to produce a pearlite plus ferrite may be satisfactory in the low side of the chemistry for the classification, although increasing carbon and/or alloy content tends to produce higher strengths with relatively little effect on ductility. And it becomes necessary to reduce the proportion of pearlite constituent by reheating the material to a temperature at which the iron-carbide can spheroidize to some degree.

If held long enough at a temperature just inferior to the Ac_1 temperature, the iron-carbide laminations in the pearlite congeal into balls or spheroids of cementite, and the result is a lower proportion of pearlite in the structure and lower tensile strength.

This operation is known as spheroidizing and when performed to the proper degree, depending upon analysis, an optimum ratio of pearlite to ferrite remains in the structure. In a spheroidized structure, the spheres of

iron-carbide or cementite offer little resistance to the passage of the tool and add nothing to the tensile strength of the material.

To show the effect of spheroidizing on the tensile strength of a material, we have made tensile tests on 0.45% C. and 0.85% C. straight carbon steels annealed to produce fully lamellar-pearlitic structure, 25% spheroidized pearlite, and 100% spheroidized pearlite.

These results indicate that spheroidization produces lower tensile strength in steels of the same analysis. Results of the test described are shown in Figure III.

In the case of higher carbon content steels which have been subjected to normalizing or full annealing treatment, pearlite predominates and consequently the material exhibits considerable strength—especially in the case of the alloy steels—to the detriment of machinability.

In Classification "IV," Figure I, tensile strength will be very high after treatment to produce fully pearlitic structure. In this case considerable of the pearlite must be reduced by spheroidizing and, in the case of higher carbon and the alloy steels, it may be necessary to resort to 100% spheroidizing.

It can be seen that in both Classification "III" and "IV," where heat treatments are employed to best advantage in improving machinability, that control of the proportion of ferrite to pearlite, and hence the ductility to tensile strength relationship, can be achieved to some extent by varying the degree of spheroidization.

In addition to the ductility to strength relationship there are two other metallurgical considerations to the problem of machinability which we believe are important.

First, we know from theory and experience that steels alloyed with carbide-forming elements, such as chromium, can be spheroidized to a lower proportion of pearlite, and hence lower strength. At the same time the alloy forms carbides similar to iron-carbides spheres which have little effect upon strength and lower the ductility influence of the alloy on ferrite.

Figure 4. Coarse lamellar pearlite (part spheroidized) but with extensive ferrite in the grain boundaries.

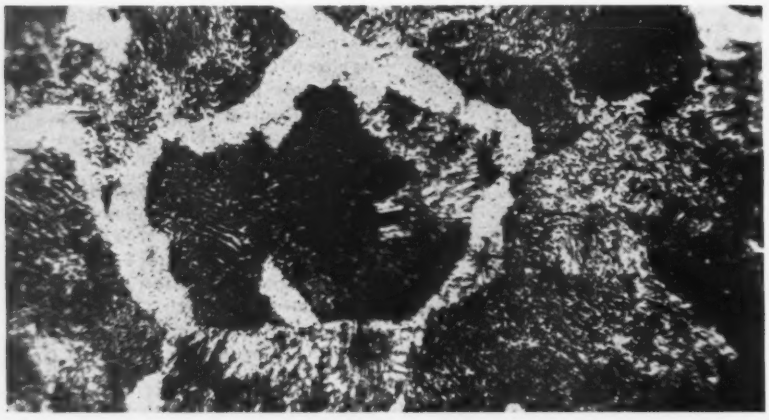
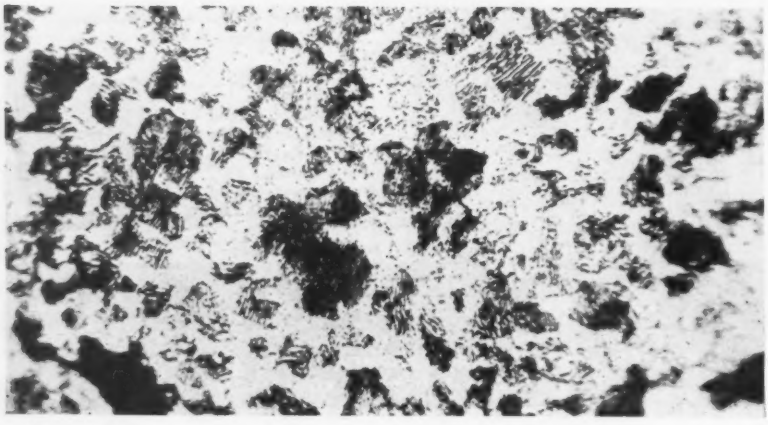


Figure 5. Uniform partially spheroidized pearlite with relatively fine grain size.



Therefore, in alloy steels with carbide formers present it is possible to obtain through heat treatments a structure nearly as suitable for machining as is possible in the comparable straight carbon grade.

On the other hand, solution-forming alloys such as nickel remain in solution throughout spheroidizing; the result being little effect upon tensile strength and increasing ductility from an originally high level.

Consequently, the machinability of steels containing solution-forming alloys is a more difficult problem.

The other important factor affecting the machinability characteristics of steel is the uniformity and grain size of the structure.

A discussion of the effect of grain size is apt to be met with numerous challenges, and, consequently, views of this topic are offered tentatively with full realization that extensive systematic tests are still required to establish irrefutable conclusions.

In one series of tests, operating data, photo-micrographs, and machinability results were cataloged on approximately 25 production orders being run on automatic screw machines. Material was 0.40% to 0.50% C. alloy.

Machinability results as reported by the operators proved confusing in attempts to correlate with any specific structural characteristic such as grain size. However, through the tests it was noted that if overall character of the structure was coarse, as shown in Figure 4, poor machinability was apt to result.

On the other hand, material of the type represented in the structure shown in Figure 5, was generally found to machine satisfactorily.

The conclusion from these observations was that if the tool could pass through steel without encountering relatively large crystals of alternately ductile and strong constituents, then machinability could be expected to be good if all other conditions were properly controlled.

It is thought that a tool passing through a coarse material, such as was shown in Figure 4, would load up in the relatively soft areas and would encounter the stronger pearlitic constituent, also of considerable size, without the benefit of a keen edge.

It can be imagined that techniques for production of uniform, fine microstructure along with proper degree of spheroidization—suitable for best machining characteristics—requires suitable annealing equipment and good operation.

(To be concluded next month)

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What Is a Consulting Management Engineer?

What does he do?
How is he qualified?
How much does he cost?

By CAPT. A. B. COURT
U. S. N. Retired
Consulting Management Engineer
San Francisco

AMONG all the occupations, skills and professions in the modern business world, the function of none is so little understood—or perhaps so generally misunderstood—as that of consulting management engineers.

Yet probably every concern of national standing in this country has employed them; most such concerns use them frequently; some retain them regularly, as they do legal counsel or consultants in various branches of science.

Governments of countries in various stages of economic development employ them. Nearly every department and agency of our federal establishment, as well as many of our states and municipalities, engage them, individually or in groups. Their most frequent employment occurs in the most mature industrial communities, but the need for their services is apparent often in places where business is just emerging from the pioneer stage. Perhaps some information about them would not be amiss in the West right now.

What is the consulting management engineer's field? What are, or should be, his qualifications? What properly is his relationship with his client? How does he operate? What does he cost?

The foregoing questions this article will try briefly to answer.

According to the Association of Consulting Management Engineers, Inc., of New York City, "In general, the services of the consulting management engineers are available to any reputable enterprise" (industrial, financial, scientific, or governmental) "with respect to:

Policy determination.
Organization.
Personnel and the various aspects of personnel administration and industrial relations.
Finance and financial planning, budgeting and other aspects of financial administration.
Physical facilities.
Materials management and the operations of supply systems, including inventory control.
Operating procedures and administrative methods relating to any department or activity of an enterprise" (establishment, institution or entity)—"procurement, production, marketing and administration.
Research and development with respect to equipment, materials, man-power, effectiveness, product and marketing methods.
Other elements in the problem of securing maximum productivity."

Sometimes a group of consulting management engineers is engaged to plan and supervise a whole program of development, a reorganization (public or private), or a coordination of public and private undertakings throughout a large area. Usually, however, when such a consultant is called in by a business concern, it is because the management thereof has a specific problem which it thinks it has not time or personnel available to solve, or in respect to which it wants a fresh, detached point of view.

Sometimes the management senses the existence of the problem but has not been able precisely to define it, or perhaps is aware of personalities in the picture with which it is reluctant to deal alone. Any one of many questions constantly arising to harass the chief executive or some of his departments may justify calling in a consulting management engineer to whom the headache may be handed.

Paraphrasing the official statements of the A.C.M.E. again, typical problems which managements submit include:

1. Where do new markets exist for our products or services?
2. Should we discontinue or add one or more products?
3. Should we modify our method of distribution, and how can we reduce its cost?
4. Are our plants located properly to serve our market?
5. Shall we centralize or decentralize?
6. At what level shall we handle our staff functions?

(Continued on page 56)

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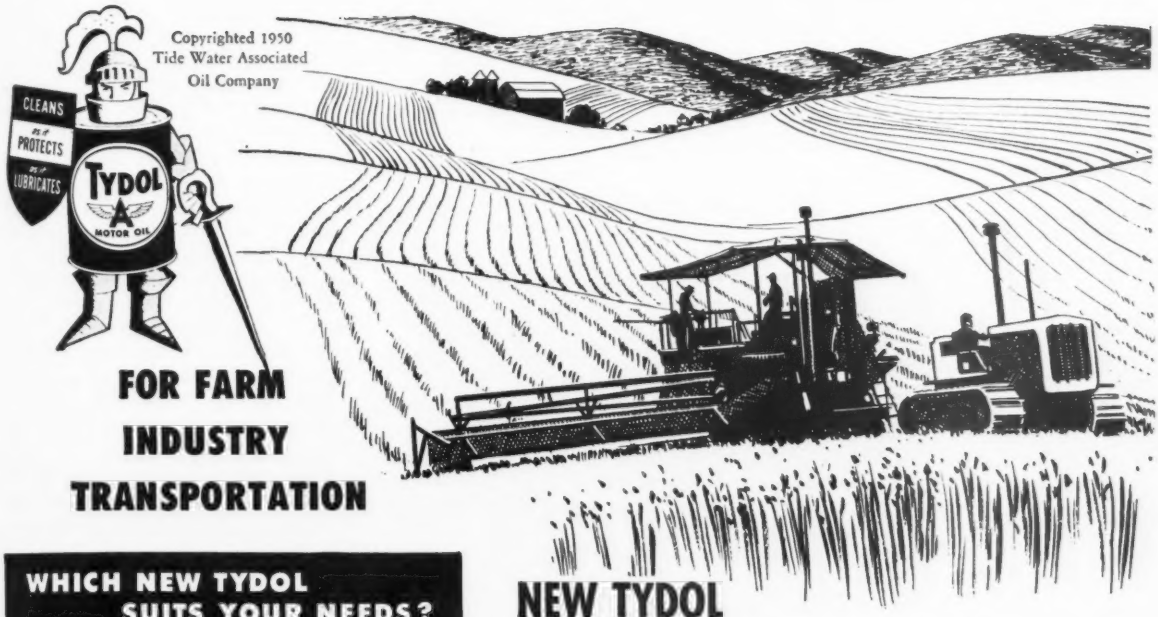

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CLEANS as it PROTECTS as it LUBRICATES!

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(Continued from page 54)

(Incidentally, one of the points at which management thinking seems to be foggiest is on "staff functions" generally.)

7. How can we best compromise between our form of organization and our available executive personnel?

8. What can we do to improve the performance of our . . . . department?

9. What, in our business, is a fair standard of productivity, per man hour, per unit of material, or per dollar of investment?

10. How can we increase "productivity" and reduce over-all production costs?

11. What is our actual break-even point?

12. How should we handle wage, salary, insurance, pension, incentive, and labor turnover problems?

13. How can we improve communications between all levels in our organization, training for greater competence and advancement of younger men?

14. How can we help our supervisors to function better as part of management?

Any executive could add many more items to such a list. For example: how can we best keep up with scientific research, basic or applied, that bears on our business? What kind of advertising? Could we improve our position by absorbing this or that concern, and if we do, how best should we consolidate it in our operations?

CAPTAIN A. B. COURT, U.S.N. retired, now a consulting management engineer, was Inspector of Naval Material for the 12th Naval District at San Francisco in the last war, having supervision of production, purchasing and financing of equipment and materials for the area.

Qualifications

Obviously the C. M. E.'s field is very broad, and his responsibilities in it are very great. What qualifications must he have to work in it?

First, he should have had sound engineering education. To this he should have added continued familiarity with the principles and the developing practices of modern management, and considerable actual experience in responsible managerial positions. Without the first training in the capacity to discern, analyze, and synthesize facts, he is defeated before he starts. Without the second, he is unaware of the "tools" at his disposal. Without the third, his judgment of people and situations may be unrealistic, and his recommendations valuless.

Besides these practical qualifications, however, he should have another, which might be called "instinctive integrity." His ethical standards should be of the highest, those of the fiduciary, which, in large measure, he is.

This last qualification bears particularly on his relationship with his client, toward whom there can be no tinge whatever of divided or partial loyalty even when the C. M. E.'s own self-interest is involved. He is, or should be, in the same position as the client's lawyer or personal physician.

When a consulting management engineer is called in, he should enter as "a friend of the management"—all the management—and that position he must steadfastly maintain throughout the association.

Fact-finding

After friendly and informal introduction to those with whom he will first come in contact, he begins with a penetrating study of the particular situation he has been called on to deal with. This is a fact-finding job, without which nothing worthwhile can be hoped for. It is aided by such accounting and other records as are available and germane to the case—although accounting records at best are only history, frequently accorded for more reverence than they deserve. What the C. M. E. is interested in primarily are the facts of operation, psychological attitudes, and the future rather than the past.

His next step is to hook up causes

and effects, evaluating and synthesizing the facts, and project them into focus. This done, he is in a position (probably after discussion with the client) to report, or "write his prescription."

Beware the high-pressure self-styled management consultant who peddles a canned "method" to all and sundry. The competent ethical consulting management engineer is familiar with all the latest techniques as well as the time-proven ones, but he deals with each case individually only after careful analysis, without predetermined panaceas. You can buy "patent medicines" from the shelf of any drug store, sometimes it will cure what ails you, sometimes (usually) it won't. Your reputable physician may even prescribe it for you; usually he doesn't.

What does the consulting management engineer charge for his services?

He usually works for a fee of from $100 to $200 for the time actually spent on the case by himself or his principal associates, depending on its nature and duration. Sometimes a total fee can be arranged in advance on a specific or limited job—such, for example, as a "job classification" in a single plant or a revised layout of machinery.

"Installation men" are usually charged for at from $10 to $15 per hour. Industrial engineers and time-study men are supplied at the same rate. Sometimes, for continuing consulting service, an annual or monthly "retainer" is agreed upon; and sometimes a C. M. E., individual or firm, will undertake a cost-reduction program on the basis of from 25 to 50 per cent of the savings resulting therefrom. This, however, can properly be done only when there is a method of determining beyond dispute the "before and after" costs, which is often difficult.

Few of the larger firms will accept engagements which will bring a fee of less than $5,000. Some fees have amounted to hundreds of thousands. Individuals, operating without permanent staff, will usually undertake lesser tasks.

On the whole, the consulting management engineer is to be regarded as a professional counselor and technical specialist, an engineer and practical expert on a high ethical plane worthy of his hire, not a high-pressure "chiseler" or a quack. He has achieved a permanent place in our world economy only because he usually gives more than he gets. There are few if any activities, large or small, in which he cannot, if given the opportunity, do just that.

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E-10508

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Features claimed: Pallet may be divided into as many partitions as necessary depending on the size and shape of the merchandise. Pallets can be stacked one on top of the

other without putting the weight of the upper decks on the merchandise. The partitions can support a 2,000-lb. load. It is easy to remove articles from any pallet in the stack.

Manufacturer: Hamerslag Equipment Co., San Francisco.

E-10509

Completely Insulated Splice in Only 3 Simple Steps

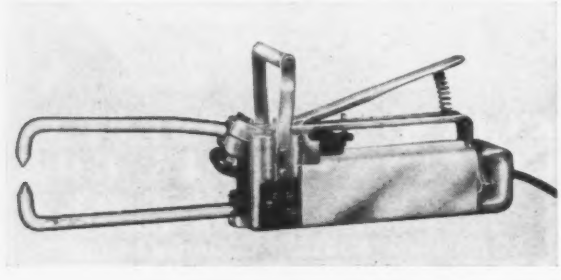
Features claimed: Splicing is a simple operation when using the Buchanan Pres-SURE tool and splice caps. These splice caps with insulators eliminate costly, bulky solder equipment and danger of shorts and grounds from punctured tape on soldered joints or from loose fixture-type connectors. Open-end splice caps for pigtail splicing of electrical wires makes installation and inspection of electrical wires much easier.

Manufacturer: Buchanan Electrical Products Corp., Hillside, N. J.

E-105010

Portable Spot Welder Converts to Floor Model

Features claimed: This portable welder, Model BW, easily mounts on a special metal stand, converts to foot pedal operation, and becomes an efficient stationary model. When in use as a portable model, a slight squeeze on the



spot welder handle applies pressure to the welding tips. An extra squeeze of the handle automatically turns on the current. Release of pressure automatically cuts off the current and separates the welding tips. Automatic switch control eliminates finger movement. Tool weighs about 33 lb. Welds up to ¼-in. combined thickness of mild or stainless steel, or two pieces of 16-gauge galvanized metal with combined thickness of ⅛ in.

Manufacturer: Greyhound A. C. Arc Welder Corp., Brooklyn, N. Y.

E-105011

Maintain Temperature Automatically with Improved Melting Furnace

Features claimed: A built-in thermostatic heat control automatically maintains a temperature within ± 20 deg. F. of any given setting from 450 deg. to 850 deg. F. Operator can easily adjust temperature of the Saeco electric furnace by turning a selective pointer knob which is on a calibrated dial. Operator cannot burn hand on spout control lever, which remains cool during operation.

Manufacturer: Santa Anita Engineering Co., Pasadena, Calif.

E-105012

Straddle Carrier for Tough Industrial Service

Features claimed: Carrier features plenty of reserve strength in every part, with all parts of frame electrically

welded into a rugged unit. Designated Ross Series 100, it handles 45,000-lb. loads, travels up to 33 mph. forward or reverse. Hoisting mechanism is hydraulically operated.

Manufacturer: The Ross Carrier Co., Benton Harbor, Mich.

E-105013

Cushioned Wood Mats Reduce Worker Fatigue

Features claimed: These floor mats permit air to circulate beneath the mat, guard against swollen or hot feet. The oak slats are interlocked with Hycar rubber; its resilience cushions the step. Mats are resistant to oils, grease, acids and sunlight. They can be rolled up, are easy to clean, dry quickly. Wood is impregnated with a sealed-in preventive against moisture and slipping. No metal or wire is used that will rust or conduct electricity on damp floors.

Manufacturer: Dutro Co., Alameda, Calif.

E-105014

Chucks Hold Non-ferrous Metals

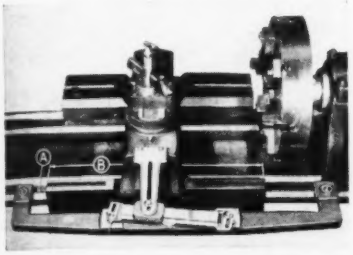
Features claimed: Now you can hold brass, copper, aluminum, and glass with this vacuum-operated chuck. Vacuum requirement is from 19 to 25 mercury inches.

Manufacturer: O. S. Walker Co., Inc., Worcester, Mass.

E-105015

Attachment for Lathes

Features claimed: This unit makes taper turning, boring and threading as simple as any straight-line tool operation. Provided with universal attachment clamps, it can be mounted on all makes of engine and tool room lathes in a few minutes. Attachment is suitable for lathes having a swing up to 36 in. to cut a taper of 20 deg. or 4 in. per ft. and 12 in. longitudinally at one setting.



Manufacturer: Master-Taper Co., Chicago, Ill.

E-105016

Plastic Mouldings in Small Lots

Features claimed: With this method precision die-moulded plastics can be produced in small lots with the lowest possible die-mould cost. The die-moulds can be expected to last for 10,000 mouldings. Average cost for such moulds varies from $50 to $150, approximately. Cost of producing the parts from these moulds varies from 3¢ to 10¢ per moulding, including all material.

Manufacturer: Dayton Rogers Manufacturing Co., Minneapolis.

E-105017

Silicons for Stopall Solution

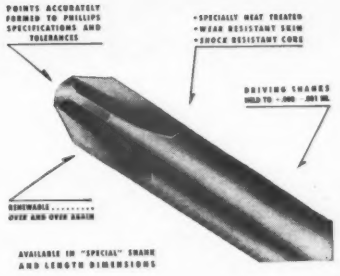
Features claimed: Stopall, type C and CP, containing General Electric silicons, is a solution used for keeping water out of concrete and cinder blocks, porous stucco, and sandlime brick. Its use permits oil painting on concrete with lasting results. Solution has been tested under varying weather conditions and found effective. Up to 150 sq. ft. of surface can be covered by one gallon.

Manufacturer: Stopall Waterproofing Manufacturers, Inc., Kalamazoo, Mich.

E-105018

Cross-recessed Screws for Assembly Operations

Features claimed: Circle Z Phillips power driver bits and insert tips for production Phillips screwdriving are made of a special chrome-tungsten chisel-grade tool steel, heat treated to produce a wear-resistant skin over a tough, shock-resistant core. Specified tolerances are accurately maintained in production, resulting in proper coordination with the mating screw head for efficient distribution of load, and maximum resistance to fracture and deformation. Circle Z bits are stocked in four tempers, to meet varying conditions of screwdriving. Bits may be repeatedly renewed at low cost, and without noticeable loss of effective length.

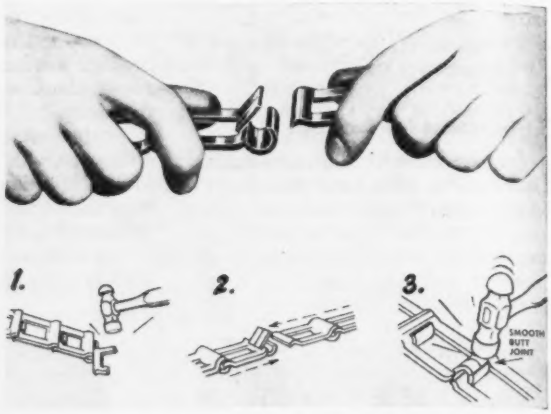


Manufacturer: Zephyr Manufacturing Co., Inglewood, Calif.

E-105019

Replace Broken Chain Belt Links in Minutes

Features claimed: When chain belt breaks down, just remove the broken link, replace with Quick-Change Link, hold the broken chain belt together by the loose ends and



hook the Quick-Change Link in place, then lock the link securely down by a few blows of a hammer. The special hook lip slips into place with adjoining links and then locks securely. This method is quick, easy and economical. Saves having to tear down equipment to adjust slack needed with pin-coupler links. In most cases one man can do the entire job.

Manufacturer: Holly Sales Co., Storm Lake, Iowa.

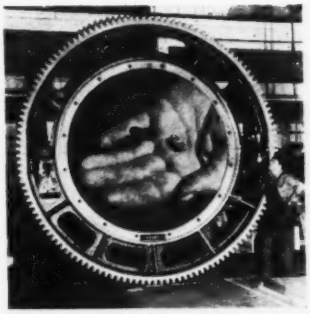
wheels of western progress

GEARS

spur gears... are widely used in every industry. Every kind of spur gearing, as well as all other known types of gears, are manufactured in our west-coast plants.

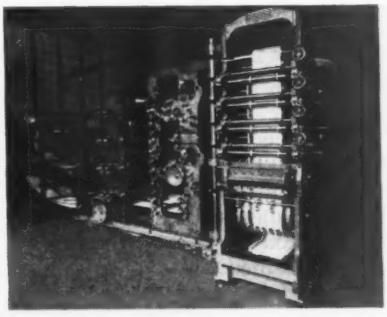
different types... All spur gears are characterized by teeth parallel to the axis of rotation. But size and conformation vary, as do the materials from which the gearing is made.

This huge gear and the small spur-gear set in the palm of the hand, are typical of the wide range of sizes made possible by the complete Pacific-Western plant facilities



Phenolic Composition Spur Gear

sample application... Spur-gear trains are fundamental elements in this new Pacific-Western Manifolding press (below left). A triple reduction spur-gear drive is employed in the highly loaded gear train used in this aircraft actuator (below right). Both are typical Pacific-Western products, correctly designed and manufactured for the application.



AGMA MEMBER

5035

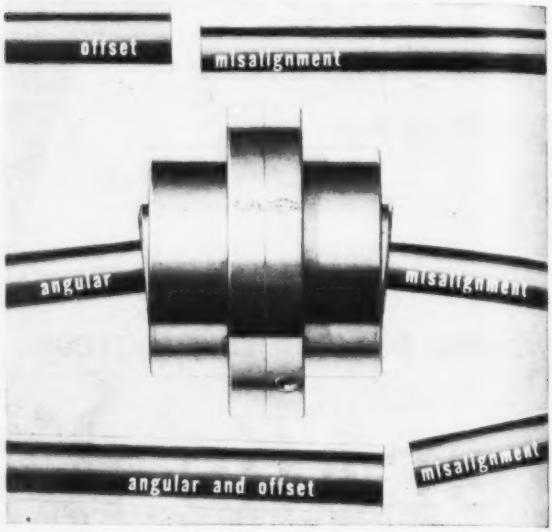
In the West, It's Pacific-Western Gear Products
For help in any problem involving mechanical power transmission, be sure to consult specialists in the design, production, and application of gears and geared products. Over FIFTY YEARS OF EXPERIENCE is at your command when you call or write the nearest Pacific-Western office.

WESTERN GEAR WORKS
Manufacturers of PACIFIC-WESTERN Gear Products
Plants at Seattle, San Francisco, Lynwood (Los Angeles County)
Representatives
Pacific Gear & Tool Works
Portland, Denver, Houston

E-105020

Coupling for Shafts Out of Alignment

Features claimed: Ajax Dihedral Coupling (standard model) is designed to handle angular and offset misalignment up to 7 deg. Capacity and performance are based on



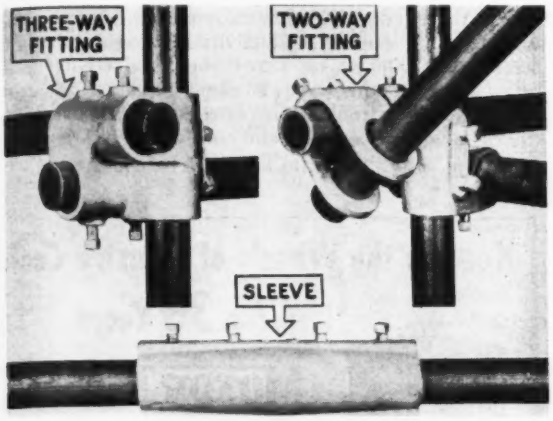
a dihedral tooth shape which provides for maximum misalignment with minimum clearance or backlash. At maximum misalignment, the driving area spreads over an entire half tooth.

Manufacturer: Ajax Flexible Coupling Co., Inc., Westfield, N. Y.

E-105021

All Metal Scaffolding Using Standard Pipe and Patented Fittings

Features claimed: Scaffolding is now set up consisting entirely of standard steel pipe fastened together by one or more of the following types of Amidon fittings: (1) Three-way fitting, for connecting longitudinal, transverse and



vertical pipes; (2) Two-way fitting, for fastening two pipes at right angles; and (3) sleeve, for joining lengths of pipe and for attaching casters. With these three fittings and standard pipe, scaffolds are readily built to any length, depth, height and shape required.

Manufacturer: Amidon Sales Co., Elyria, O.

E-105022

Check Your Job Production Rate

Features claimed: The production rate of a job can be checked while it is running, with an inexpensive new type of slide rule. The rule is set in full view of the machine in operation. Counts periodically the number of pieces finished on a given operation, and interprets the quantity in terms of earned hours. Hours earned are set on the movable scale of the unit directly below the number of hours worked. A green signal shows if productivity is above standard expectancy of 100%; a red signal when productivity drops below 100%. In this way a constant check can be maintained and costly troubles eliminated while the operation is still running. A recess in the unit holds job instruction slips.

Manufacturer: R. G. Bock Engineers, Chicago.

E-105023

Factory Layout Planning Kit

Features claimed: Low cost planning unit enables anyone to lay out a single department or a whole factory without drafting tools. Basic unit of the method is a rigid planning board with an integrally molded plastic surface marked off into ¼-in. squares corresponding to one foot of actual floor space. A plastic marking pencil is supplied to mark all locating points of the plan outline. Colored plastic adhesive tape of various widths is then attached to indicate walls, partitions, and other boundaries. Accurately scaled templates of equipment and personnel are then shifted about the working surface until the desired arrangement is achieved. Two booklets, giving directions and principles of layout practice, are provided.

Manufacturer: Triometric, Inc., Pittsburgh, Pa.

E-105024

Inexpensive Manual 4-way Valve

Features claimed: Pipe scale and foreign material in the line cannot lodge between the sealing surfaces of the Ardee valve, due to the wiping action of the sliding seal. These new units, furnished in aluminum or brass, control 150 p.s.i. air pressure, and handle liquid pressures up to 1,000 p.s.i. The round internal flow passages of the valve are unobstructed and of the same diameter as the nominal pipe size. Valves are available in pipe sizes from ¼ to ¾ in.

Manufacturer: Barksdale Valves, Los Angeles.

E-105025

Diamond Core Drills

Features claimed: "Starlite" diamond drills have selected diamonds permanently bonded in a special alloy and are evenly distributed throughout the metal. Tube walls are so thin that these drills cut quickly with a minimum of chipping, yet the walls remain rigid even under pressure. Drilled cores automatically ejected without removing drill from chuck. Used in an ordinary drill press, and at any speed. Stock sizes from ⅛" to 5" o.d. Special sizes on order.

Manufacturer: Starlite Industries, Inc., Philadelphia, Pa.

E-105026

Close-fitting Bushings

Features claimed: Branded Ampco metal guide post bushings can be fitted closely, providing maximum supporting alignment for costly punches and dies. They will not gall and cause sheared or broken die members, score,

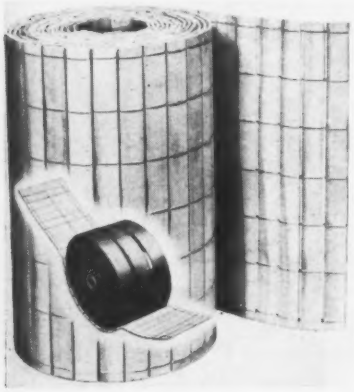
seige, or rust. Made from centrifugally cast bar stock, they will outlast steel or ordinary bronze bushings.

Manufacturer: Diemakers Supplies, Inc., Detroit, Mich.

E-105027

Wire-woven Slats for Wrapping

Features claimed: Bulky, irregularly-shaped products have complete protection during shipment if wrapped in this material fabricated of tough,



Northern Elm wood slats woven together with wire. In addition to wrapping heavy irregular objects, it can be used for enclosing the sides of crates when a semi-enclosed sheath is advisable. Because of its light weight, the wrapping adds little weight when figuring shipping charges.

Manufacturer: G. B. Lewis Co., Watertown, Wis.

E-105028

One Man Can Lift ½ Ton With This Hoist

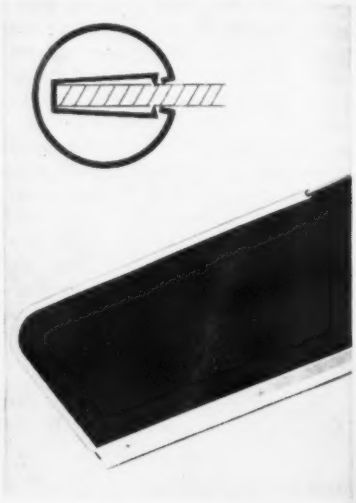
Features claimed: With less work than it takes to climb an average flight of stairs, one man can lift 1,000 lb. using this hand chain hoist. Yet this unit weighs only one-half as much as conventional hoists of the same capacity (37 lb.). It easily raises a full load three feet in 20 seconds. Called the Load King, the hoist operates at high speed, friction is minimized: all rotary shafts have ball bearings, and parts are precision machined. New load brake Synchromatic provides split-second automatic braking when hoisting or lowering. Balanced and cushioned springs force engagement of a 6-tooth pawl and a 24-tooth ratchet, assuring positive, immediate braking action without any harmful side pressure on bearings. A stabilizer ring speeds brake release for precise inching when lowering a load. Available in ½, 1, 1½, and 2-ton capacities.

Manufacturer: Yale & Towne Manufacturing Co., Philadelphia.

E-105029

Low-cost Beading Hides Raw Edges

Features claimed: Installation is extremely easy for this stainless snap-on beading, developed for dressing up raw edges of products made of plastic, wood, leather, or metal. A hand tool is used for applying small toothed clips at intervals along the edge. The moulding snaps over these with a permanent



gripping action, completely concealing the clips. The Spotrim edge can be formed for any shape product including rounded corners.

Manufacturer: Spotrim Corp., Detroit, Mich.

Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD

First Class Permit No. 3755, Sec. 34.9, P.L.&R., San Francisco, Calif.

WESTERN INDUSTRY

609 Mission Street,

San Francisco 5, California

E-105027

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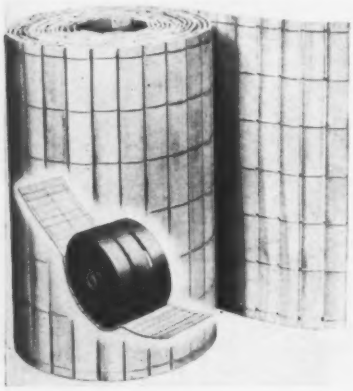

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Manufacturer: Spotrim Corp., Detroit, Mich.

Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD

First Class Permit No. 3755, Sec. 34.9, P.L.&R., San Francisco, Calif.

WESTERN INDUSTRY

609 Mission Street,

San Francisco 5, California

Information Bureau, WESTERN INDUSTRY

Please send me information or bulletins mentioned under the following key numbers:

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Also further information on the following products advertised in this issue:

_____

_____

Name _____ Title _____

Company _____

Address _____

City _____ Zone _____ State _____

E-105030

Fifth Wheel Trailer with Automatic Coupling

Features claimed: Close coupling feature of this trailer automatically links the trailers just 18 in. apart. A special locking device keeps the fifth

wheel in line and prevents jackknifing when the trailer train backs. More maneuverable and rugged than the conventional caster type, the rubber wheels on this model roll easily, even under capacity weight (6,000 lbs.), and thereby reduce drain on a storage battery-operated tractor. Especially valuable for handling heavy loads or for long hauls around docks, warehouses and terminals. Flat bed 3′0″ x 6′0″, 12¾″ off the floor.

Manufacturer: Market Forge Co., Everett, Mass.

E-105031

Protective Scotch Tape

Features claimed: Scotch brand No-Mar protective tape is applied to sheets of stainless steel to protect the surface against scratches and die marks during shipment, storage, fabrication, and after-fabrication shipment and storage. It is also used with other highly polished metals and some plated metals. Tape has an adhesive that enables it to stick immediately upon contact, and that constitutes a rubbery protective film that stretches with the metal during fabrication. Paper backing eliminates wrinkling during even long periods of storage, thus avoiding possible scoring due to creased paper during fabrication.

Manufacturer: Minnesota Mining and Manufacturing Co., St. Paul.

E-105032

Stronger Grip Lock Nut

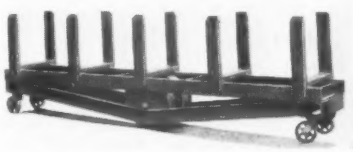
Features claimed: Gripco Lock Nut has six double-triangle thread-deflection areas instead of three, thus increasing the holding power nearly 50%, and producing a longer lasting grip to withstand severe vibration and strain. Shape of the projection on the company's projection weld nut has been improved to make a more positive weld; these nuts are available with either common threads or with the double-triangle lock.

Manufacturer: Grip Nut Co., Chicago, Ill.

E-105033

Heavy-duty Bar Truck

Features claimed: These trucks of steel channel and I-beam construction can handle any load capacity. Units are tilt-type for easy handling of long



stock, including tubing, and are of reinforced all-steel welded construction. Four swivel casters at the ends facilitate movement. Trucks are built to specification and color.

Manufacturer: Palmer-Shile Co., Detroit, Mich.

E-105034

Stone-Lined Tanks

Features claimed: Steel tanks lined with ⅜″ thick hydraulic stone which offers maximum protection against tank rust and corrosion are now available. Stone holds the water; steel simply holds the pressure. Tank life is prolonged indefinitely.

Manufacturer: Sepco Corporation, Pottstown, Pa.

READING GUIDE FOR WESTERN MANAGEMENT

A service for all management levels . . . current literature surveyed and appraised by the faculty of the School of Management, Golden Gate College

The New Society, The Anatomy of the Industrial Order

By Peter F. Drucker, Harper & Brothers, New York, 1950, $5.00.

The author describes his effort to dissect, describe, and prescribe for the ills of the industrial "anatomy," or order, as "an anti-utopian book." He "aims throughout, not at the ideal society, but at a livable society for our time."

Much of his analysis of the vital structure, faults and problems of both unions and management presents little that is new or challenging. For the advanced student or younger executive, his summarized, rather theoretical discussion may be helpful. Few practical men, whether in unions, management or government will have the patience to go through his somewhat academic preliminary material to reach the heart of his constructive suggestions.

Among the numerous questions raised by the author are: "Can unions survive?"; "Can management be legitimate?"; "Will union leaders grow more mature?"; "How should top management be trained and selected?"; "Is a competitive market necessary?" He tries in each case to give constructive answers, sometimes sharply critical of current attitudes and practices on the part of both union leadership and industrial executives.

The strength of the book lies in its effort to provide basic approaches to solutions for some of our most troublesome national problems. Some of these issues arise out of the conflict between the necessity to so manage each enterprise as to guarantee its stability and continuity, and the need of the individual employee for economic security. Others are due to the rapid growth in union membership, with greatly enlarged economic and political power, and the enlarged scope of collective bargaining.

The strike has become, under certain conditions, a menace both to the public welfare and to the continued life of the enterprises against which it is directed. The conclusion is reached that there can be no "right" to strike against the public interest. Limitations on union power are recognized as necessary to avoid the fallacious ideas that members can blindly uphold union policy or objectives, disregarding their responsibilities as citizens and employees.

On the troublesome wage question, frequently cause for strikes, the author proposes negotiations on the basis of the wage burden. "The major question for society, enterprise and union is what the wage burden on production should be. How much of the total cost should go for labor costs? How much of the total income should be the worker's income? Wage rates are not the first but the last question to be considered."

The author has a few chapters which appear pretty thin in view of the extensive literature on some of these subjects. At times he makes rather broad unqualified statements which are certain to arouse disagreement. For example: "The development of sound profit-sharing plans is of special importance in countries undergoing industrialization. It is no accident that Soviet Russia has developed them further than any other country."

Most union leaders as well as personnel executives could profit by thoughtful turning of his pages on, "The Worker and his Plant Government," and "Plant Self-government and the Union."

One could wish, overlooking its faults, that the book could be widely read. If industrial enterprises, unions, and the government are to progress together toward a more stable society, we need much thoughtful consideration of the basic problems of organization and policy which are here presented.

Reviewed by:
DR. ROY W. KELLY
Lecturer in Personnel Administration

* * *

Briefer Guides From The Management Library

Mobilizing for Atomic War

National Industrial Conference Board, New York, Studies in Business Policy No. 46, 1950.

Because our defense is a vital concern that deserves immediate and thorough attention, the Conference Board undertook a study of the progress that has been made in setting up our economic and civil defense. This report presents the results of that study.

Let's Sell

By John Beckley. Prentice-Hall, Inc., New York, 1950, $2.00.

Illustrated with clever cartoons, this easy-to-read book covers such important aspects of salesmanship as mental attitude, sales presentations, finding prospects, and closing the sale.

Preventive Tax Planning

Research Institute of America, New York, Analysis 73, 1950.

The key to tax savings today is preventive tax planning. This report on advance planning to minimize personal and business taxes presents 100 key tax questions. The answers emphasize the points to watch in daily tax decisions.

California Government

By W. W. Crouch and D. E. McHenry. University of California Press, Berkeley, California, 1949, $5.00.

Here is a revised and up-to-date analysis of state and local government in California. The authors discuss the legislature, the constitution, the executive and judicial departments, social and welfare functions of the state, and California's role in the federal union.

Appraising Vocational Fitness by Means of Psychological Tests

By Donald E. Super. Harper Bros., New York, 1949, $5.00.

Testing has become a big business—in a single recent year some 20,000,000 Americans took 60,000,000 tests. The author presents a detailed analysis of the most widely used and useful tests, and gives special emphasis on the use of test results in counseling.

An Analysis of Government Life Insurance

By D. M. McGill. University of Pennsylvania Press, Philadelphia, 1949, $3.75.

Here is a history of the program under which the Government has made life insurance available to members of the military and naval services. The author evaluates Government insurance as an instrument of social policy, and discusses the subsidies involved and the problems which have been encountered.

Industrial Traffic Departments

National Industrial Conference Board, New York, Studies in Business Policy No. 45, 1950.

A well-operated traffic department can effect substantial savings by handling shipments efficiently, it can widen company markets, open supply sources, and build customer good will. The basing-point decision and rising transportation costs have served to increase management's interest in the traffic department. This study of the organization and operation of traffic departments is based on the contributions of nearly 300 traffic managers.

Reviewed by:
BERNA M. CARLSON
College Librarian

HELPFUL LITERATURE

for the plant operator who wants to keep informed

10501-L

FIRE HYDRANTS—VALVES—STANDPIPE FITTINGS — *M. Greenberg's Sons*, brass foundry and machine works, 765 Folsom Street, San Francisco, California, provide Catalog No. 10, which includes information on above items, plus data on fire protection, brass and bronze products.

10502-L

HANDBOOK OF MATERIAL HANDLING WITH INDUSTRIAL TRUCKS—A practical guide for the analysis of material handling operations and the application of the unit-load method with power-operated industrial trucks and accessories. $2.00 per copy, from *The Electrical Industrial Truck Association, 3701 North Broad Street, Philadelphia 40, Pa.*

10503-L

THE S-A BOX CAR UNLOADER, described in bulletin #549 published by *Stephens-Adamson Mfg. Co., Aurora, Illinois*, handles grain, dry chemicals, sand, cement and practically all bulk materials, up to 2-inch lump size, handled in box cars. A pantograph arm equipped with a scoop reaches into the car until it meets an obstruction, drops down and withdraws a load of material, discharging it to a track-side hopper. This cycle continues automatically, the single operator taking only enough time from other tasks to direct the arm to different sections of the car. A brush attachment snaps to the scoop for final clean out of the car. An unloading operation can be completed in only one-half man hour. Complete details on full, or semi-automatic, S-A Box Car Unloaders are contained in the bulletin.

10504-L

The informative MAAS TECHNICAL BULLETIN for the photo-pure and technical grades of Maas anhydrous sodium sulphite, just off the press, may be obtained by writing the *A. R. Maas Chemical Co., 4570 Ardine Street, South Gate, California.* Among others, it is used for production of glycerin from sugar, alcohol from wheat, treatment of boiler waters, flotation of ores in petroleum pipe lines, in rubber and latex products, and in alloy and carbon steels.

10505-L

RECOMMENDED CARLOADING PATTERNS FOR CANNED GOODS—a 32-page pamphlet being distributed by Union Pacific Railroad in the interest of reducing loss and damage to this commodity and others similarly packed in fibreboard containers. It includes 16 loading patterns for the case sizes most commonly shipped. Other subjects discussed are doorway protection, unitized loading, loading mixed sizes, stop-over cars, sealing of cases, and description with illustrations of typical vacuum and cannery dents. Your copy may be obtained by writing to *O. J. Wullstein, General Freight Claim Agent, Union Pacific Railroad Company, 1416 Dodge Street, Omaha 2, Nebraska.*

10506-L

LET'S WRITE FRIENDLIER LETTERS—A down-to-earth approach on the subject of modern letter writing described in a 36-page booket published by the *Buckley Institute, 2108 Lincoln-Liberty Building, Philadelphia 7, Pa.*, contains helpful hints, will help the reader to become letter conscious, teach him the secret and value of friendly letter writing, improve customer relations, and help to build confidence in, as well as respect and preference for your company. Your copy will cost $1.00.

10507-L

THE KALMAN PROCESS—An illustrated 8-page catalog describes the precision method of building in maximum hardness and density uniformly over complete floor areas. The laying of one of these Granolithic Cement Floors in a typical plant shows in detail the underslab preparation, preparation of proper-aggregate Kalman topping mix, absorption control, compacting, surfacing, troweling and curing. Service characteristics adaptable to a wide variety of installation requirements are fully outlined and a simplified maintenance practice suggested. A copy of the catalog may be had by writing *Kalman Floor Company, Inc., 110 E. 42nd St., New York 17, N. Y.*

THE WEST ON ITS WAY

CALIFORNIA

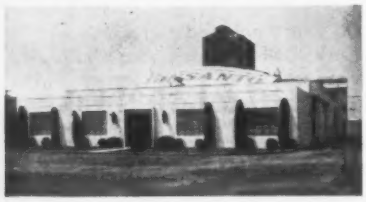
NEW SITE FOR CASTER MANUFACTURER—The Bassick Company, manufacturer of casters, acquires property located at 3220 Fruitland Avenue, Vernon, California, for the expansion of warehousing activities. The building, of modern design, has 5,100 square feet for office and warehouse, located on property 100' x 175' allowing for future expansion. Complete new equipment will be installed throughout and the building is expected to be ready for occupancy the latter part of November.

U. S. SPRING AND BUMPER CO. EXTENDS OPERATIONS—With the purchase of the assets of Fether & Co., 2490 Lafayette, Santa Clara, the United States Spring & Bumper Co., Los Angeles, extends its operations into a new field—the manufacture of brake linings for the automotive and commercial field. Effective August 1, the new plant became known as the Brake Division of United States Spring & Bumper Co. Manufacture of Fether Smooth Brake Lining will be continued by the new owners, and distributed by jobbers throughout the eleven Western states.

$100,000 ADDITION FOR HART'S FRUIT PRODUCTS—Hart's Fruit Products, Brea, begins construction on a new $100,000 addition which will triple the capacity of the plant for straight orange juice and frozen concentrate citrus products.

$66,000,000 TEXAS-LOS ANGELES PIPELINE PLANNED—West Coast Pipeline Company, comprised of a group of 50 independent pipeline operators from Texas, California, Arizona and New Mexico, plans to construct an 1,100-mile $66,000,000 pipe line to carry crude oil from Monahans, Texas, to Los Angeles. When completed, the 20-inch line will be capable of delivering 200,000 barrels of oil per day from the Permian Basin in West Texas to Los Angeles.

$3,500,000 AIRCRAFT CONTRACT FOR OAKLAND—Aircraft Engineering & Maintenance Co., Oakland, receives a United States Government contract for the cycle reconditioning overhaul of more than 125 four-engine (C-54) Military Air Transport Service planes used to fly the Korean airlift. The contract will require a labor force of 1,400 persons and will exceed $3,500,000. Work begins immediately and will be done at the AEMCO base at Oakland Municipal Airport.



Monsanto Chemical Company's Long Beach plant

In this 31,500 sq. ft. building, 6251 Paramount Blvd., Long Beach, polystyrene plastic moulding compound will be produced.

PACKARD-BELL EXPANDS — Packard-Bell Co., makers of television sets, awards $200,000 contract to Butress & McLellan, Inc., Los Angeles, for the erection of a new 50,000 square foot factory to be completed by November, 1950. The new building, to adjoin the firm's present 54,000 square foot factory in Los Angeles, will be fully equipped with a conveyor belt system. Another addition is planned in the near future, twice as large as the one now under construction. The second addition will house tool, die, riveting, plating and cabinet shops, and will also replace one of two existing leased plants.

New Building for B. F. McDonald Co.

$250,000 EXPANSION FOR MANUFACTURING CO.—B. F. McDonald Co. begins construction on a new office and manufacturing plant on a 4-acre site at 5721 W. 96th Street adjacent to the Los Angeles International Airport, at an approximate cost of $250,000. Completion is expected by the end of 1950. The new building, shown above, more than doubles the space at the present plant at 51st and South Hoover St. Of concrete and steel, with sawtooth construction over the factory portion, the new building will permit consolidation of all operations necessary to the production of safety equipment items developed and manufactured by the company.

RUBBER PLANTS BOUNCE BACK—According to reports, facilities at the following three synthetic rubber plants will be reactivated to forestall the development of a possible rubber shortage: (1) Shell Oil Company, under managership of E. S. Bodine, will operate the Torrance butadiene plant; (2) Standard Oil of California will operate a butadiene plant at El Segundo with E. E. Lyder in charge; (3) Minnesota Mining and Manufacturing Co. of St. Paul and Pacific Rubber Co. of Oakland, will jointly operate a copolymer plant at Torrance.

LONG TERM LEASE FOR GEN. PETE—General Petroleum Corporation takes a long term lease on property at Soto and Hostetter Sts., Los Angeles. Plans for immediate improvement are under way.

$100,000 PLANT FOR AERO SUPPLIES—Aero Supplies of Los Angeles, Inc., begins construction of a $100,000 plant in Los Angeles. A production boost in aircraft parts by about 30% is expected when the 10,400 square foot building is completed in November.

2,100 REFRIGERATOR CARS FOR PFE—Plans have been made for Pacific Fruit Express to add another 2,100 refrigerator cars to its present fleet of more than 38,000 cars. The new acquisition will raise to approximately $125,000,000, the cost of PFE's fleet modernization and general repair program since World War II. The new cars will be built in the PFE shops at Los Angeles and Colton, with first of the new cars scheduled to go into service before the middle of 1951.

$100,000 INVESTMENT FOR NEW OAKLAND FIRM—Gelvatex Coatings Corp., a new concern, signs a five-year lease on a building at 902 72nd Ave. They will manufacture a protective and decorative coating.

WESTOIL TERMINALS CO. FORMS—Westoil Terminals Company, a newly formed operating company, purchases the physical assets of the Pacific States Oil Co. located in the Los Angeles harbor area.

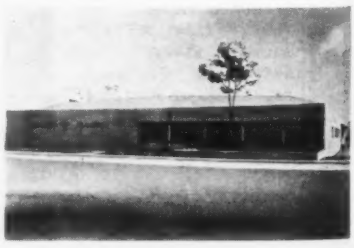
CONTRACT AWARD FOR PELTON WATER WHEEL CO. — Pelton Water Wheel Co. (Baldwin Locomotive) receives contracts totaling $400,000 for turbines and allied equipment by California Oregon Power Co. The Copco unit of 15,400 hp. is for the Fishcreek hydro-electric plant. The award is a subcontract of the Westinghouse International Development Co., which holds prime contract for the governmental project.

HOFFMAN RADIO ADV. DEPT. MOVES—Hoffman Radio Corporation moves its advertising department from temporary Grand Avenue quarters to its No. 1 plant at 3430 South Hill Street, Los Angeles, where it will occupy the entire first floor.

AIR FORCE T-29 ORDER FOR CONVAIR—Consolidated Vultee Aircraft Corp., San Diego, receives an order from the Air Force for an additional undisclosed number of T-29 Flying Classrooms for training navigators and bombardiers. The T-29 is the first plane designed specifically for training navigators in groups. Facilities for 14 students and instructors are provided in the cabin. Curtains divide the main cabin into four "classrooms" for specialized instruction.

DUTRO COMPANY MOVES — Dutro Company, manufacturer of cushioned wood floor mats and hand trucks, moves to 2155 Webster Street, Alameda, California.

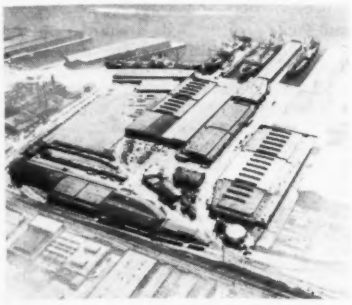
BUDGET PACK, INC. SELLS—J. Hungerford Smith Co., Rochester, N. Y., and the Cleveland Fruit Juice Co., Cleveland, Ohio, purchase the Modesto plant of Budget Pack, Inc. The modern one-story plant of 70,000 square feet will be used for the production of soda fountain and ice cream fruits and flavors for the Western market. Total investment in plant and equipment amounts to around $500,000.



Sylvania Electric has new Los Angeles warehouse

New warehouse and office facility opened by Sylvania Electric Products Inc., at 2936 E. 46th Street, Los Angeles.

GENERAL METALS CORPORATION—producer of quality castings and forgings, changes its corporate identity to Metals Division, General Metals Corporation. The change became effective upon consolidation of General Metals with two other nationally known concerns, Enterprise Engine and Foundry Company of San Francisco and Adel Precision Products Company of Burbank, California, with headquarters located in San Francisco.



Howard Terminal, Oakland

HALF A CENTURY AND STILL GOING STRONG — Howard Terminal, Oakland, celebrates 50 years of continuous operation and growth. Still operating in the same location, this pioneer Oakland waterfront firm opened for business September 14, 1900, as a building materials supply house. It first expanded to add feed milling operations, and at one time was the largest coal handling plant on the Pacific Coast. Today, the terminal shown above employs 200 people, and operates one of the most complete cargo handling and shipping facilities on the Coast.

McCulloch Motors grows 300% in size

$2,500,000 EXPANSION program will increase space and capacity threefold. Plant is at 6101 West Century Blvd., L. A. Expected completion date is June, 1951.

ANDERSONIA PLANT LEASED—Andersonia Lumber Company, Piercy, is leased to Thomas M. Dimmick and will be known as the T. M. Dimmick Lumber Company.

SHASTA PLYWOOD TO BUILD $2,000,000 PLANT—Shasta Plywood, Inc., plans to construct a $2,000,000 plant north of its present mill at Anderson, for the production of Novoply, a product of wood shavings and chips, by a new patented process. The product will be used for furniture and house fixtures. It is planned to operate the plant three shifts per day with an annual payroll of approximately $500,000.

MODERN CEMENT PLANT TO LOCATE NEAR OJAI—Cement Corporation of America plans a modern cement plant to be built on the site of the old Ventura Cement Co. properties near Ojai, comprising some 2,000 acres. Geological engineering reports establish the amount of natural cement rock there to be one of the largest undeveloped deposits in the West. The plant will be of the most modern design. Latest type of equipment will be installed and most recent developments in manufacture of cement will be applied. Production is expected by early spring of 1951.

WELCH INDUSTRIES MOVE—The Welch Industries, Inc., manufacturers of high speed and carbide milling cutters, are now located at 2015 N. Chico Avenue, El Monte.

PIT RIVER LUMBER CO. ACQUIRES ALTURAS PROPERTY—Edgar R. Stanlake, Malcolm Peacock and Ned Austin, three former members of the Smith organization, acquire the Alturas box plant of Ralph L. Smith Lumber Co. and are now operating it as the Pit River Lumber Co. Under the new set up, Pit River purchased the buildings and planing mill part of the factory, and has leased the box factory equipment.

SULFURIC ACID UNIT FOR STAUFFER CHEMICAL—Stauffer Chemical Co. plans to build a large, modern sulfuric acid unit in Southern California, probably at Vernon, where the company has facilities for making superphosphate fertilizer, refined and ground sulfurs, a complete line of insecticides and plastic and rubber storage battery containers, covers and accessories. Leonard Construction Company will build the unit and completion is expected for next summer.

GROUND BROKEN FOR MONROVIA PLANT—Caram Manufacturing Co., producer of rubber cement and adhesives, presently located at 1227 E. 63rd Street, Los Angeles, begins construction on a new 12,000 square foot building on California Street, Monrovia. Completion is expected before the end of the year.

PACIFIC SOUTHWEST DEVELOPMENT CORP. FORMS—to engage principally in a planned program of industrial development with special emphasis on bringing new industry to the smaller community. Headquarters are at 974 West Manchester Avenue at Vermont, Los Angeles 44. Telephone Thornwall 3823. Cliff A. Nelson of San Jose, appointed manager of the Industrial Department.

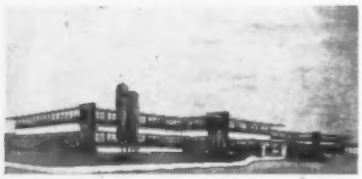
$200,000 PLANT FOR KRIM-CO CORP.—Krim-Co Corporation, with main offices in Chicago, plans to construct a one-story concrete-block building of 22,000 square feet on Union Street between 24th and 26th Streets, Oakland, for the exclusive manufacture of basic syrups distributed to dairies and creameries in the eleven Western states. Christensen and Lyons, 3454 Harland Street, awarded contract for the project.

A CORRECTION—In the September issue of *Western Industry* it was stated that Marshallan Manufacturing Co. of Cleveland had established a Western operation at 311 West Avenue 33d, Los Angeles. Mrs. Mabel Peed of Pioneer Steel Company advises that her company at that address has not sold out to Marshallan, but is simply manufacturing under contract for Marshallan along with other customers.

COLORADO

NEW GAS PIPELINE FORMS—General Petroleum Corp. announces plans for forming a new company to be known as Grand Valley Pipeline Co., with M. B. Garman, a natural gas pipeline operator, and Public Service Co. of Colorado, to construct a pipeline which will tap an isolated natural gas field in a remote corner of Colorado. Each

of the three parties will have a one-third interest in the new company which will build and operate a natural gas pipeline from the Piceance Creek natural gas field in Colorado to communities along the Colorado River, including Grand Junction. This city until now has not had access to natural gas supplies. P. S. Magruder, executive vice-president of General Pete, becomes president of the new company; M. B. Garman will be vice-president and secretary; and F. T. Parks, vice-president of Public Service, elected vice-president and treasurer.



AIR HUB TO EXPAND—Pictured above is projected northwest wing of Denver Airport Terminal building which will house new and expanded facilities for United Air Lines' centralized operating base. The two stories and basement, comprising 67,000 square feet, will be occupied by offices of operations and passenger service administrations. Building is being leased by United from City and County of Denver for term of 30 years.

IDAHO

$18,500,000 POWER PLANT ON SNAKE RIVER—Plans are being made by Idaho Power Co. to construct an $18,500,000 power plant on the Snake River about seven miles upstream from Grandview, in southwestern Idaho. The project will be known as the C. J. Strike Development, in honor of the late president and general manager of the company, and is scheduled for completion by 1952. The hydro-electric project will contain three 30,000 kw. generators and when complete will boost the company's generation to nearly 400,000 kw.

TRANS-NORTHWEST GAS INC. PLANS TO BUILD—Tentative plans have been made by a Spokane, Washington, firm to build natural gas pipe lines into southern Idaho from Wyoming fields. A survey is being made by the company to determine whether a Wyoming-Idaho line is feasible, and if the project is completed, between $12,000,000 and $15,000,000 will be spent. Highway Director William A. Bugge, in Seattle, postponed indefinitely a hearing formerly scheduled to pass upon the application of Trans-Northwest Gas, Inc., for rights to lay pipe on highway right of way.

MONTANA

MAJOR CONSTRUCTION FOR MONTANA POWER—Montana Power Company plans a major construction program calling for complete renovation of Helena's distribution system and installation of the first completely-automatic equipment to be placed in operation in Montana. Work will begin immediately and the project is expected to be completed and in operation during the summer of 1951. Included in the project will be a new city substation in the warehouse district near the Great Northern depot, installation of automatic equipment at the west-side substation on Henderson Street, construction of a 15,000 kva. substation at East Helena and installation of automatic equipment and micro-wave communications facilities throughout the Helena area. When completed, the new facilities will give Helena triple source of electric power, and improve service in the entire area.

2ND GAS LINE FOR GREAT FALLS—Work on a second pipeline linking Great Falls with the natural gas fields of Glacier and Toole counties will be started this fall by Dakota Utilities Co. The company is negotiating a contract for construction of the 21-mile duplicate line and expects the job to be completed within 60 days of the contract letting. This project will bring to over $2,000,000 the amount spent since the beginning of World War II by the company in constructing gas compressor plants, connecting new gas fields and wells, and other facilities.

OREGON

IRON FIREMAN MFG. CO. INCREASES LABOR FORCE—Iron Fireman Manufacturing Co.'s Portland plant increases its labor force by 200 workers, and plans to add 200 additional employees as production is stepped up on some 2,000 parts for planes for Boeing at Seattle. The company is now operating two shifts, with more than 300 workers.

PUD OFFERS $1,065,000 FOR WASCO PROPERTY — Northern Wasco County people's utility district offers to buy all of the

Pacific Power and Light company properties in Wasco County and some lines in Sherman County at a reported $1,065,000. Among the Pacific Power properties involved are the Tygh Valley hydroelectric generating plant on the White River, substations at Tygh Valley, Dufur and The Dalles and connecting transmission lines.

CHEESE ASSOCIATION TO REBUILD —At an estimated cost of $80,000, the Arago Cooperative Cheese Association factory, destroyed by fire several weeks ago, will be rebuilt on the same site. The factory will reopen early in 1951.

VENEER PLANT REOPENS — Campbell & McLean of Eugene, operators of a plywood plant in the valley city, reopen the green veneer plant at Hunter Creek, near Gold Beach, naming P. H. McKee as manager. Operations by the original owner were suspended in 1949.

PAPER COMPANY PLANS COMPLETED—Final expansion plans of the Western Waxed Paper Co. provide for the gummed tape division becoming the Western Gummed & Coated Products Company, a division of Crown Zellerbach Corporation, with headquarters in North Portland where gummed sealing tapes have been produced for more than 20 years. A. S. Hammond named manager of the new company, and O. R. Johnson becomes assistant manager in charge of sales and operations.

CORRUGATED CONTAINER PLANT BEGINS OPERATION—The new corrugated container plant of the Container Corporation of America begins operation in the former warehouse of the Oregon Shipyards located at 12005 N. Burgard Avenue. The folding container division formerly located at 934 N.E. 25th also moves to the new location.

CONSOLIDATED FREIGHTWAYS EXPAND — Consolidated Freightways, 1633 N.W. 21st Ave., Portland, acquires and begins remodeling of a 4-story 72′ x 200′ concrete building, and a 3-story 80′ x 180′ concrete building, both to be used to house expanding departments. Estimated cost is $400,000.

CROWN ZELLERBACH TO SPEND $250,000—At an estimated cost of $250,000, Crown Zellerbach Corporation, West Linn, begins preliminary work on a new wood mill which includes construction of concrete and steel structures at the bleach plant, and additions to the filter plant.

$100,000 ADDITION FOR LEATHER CO. —Frontier Leather Company, Sherwood, begins construction on a 2-story 80′ x 124′ reinforced concrete addition to its present facilities at an estimated cost of $100,000.

$200,000 BUILDING FOR ASBESTOS SUPPLY—Miller & Woodbury, Inc., 2900 N.W. 29th Ave., Portland, begins construction on a 1-story 100′ x 340′ reinforced concrete building to be leased to the Asbestos Supply Co. of Oregon. Estimated cost of the building is $200,000.

$1,000,000 FIRE IN PORTLAND — Fire damages the building occupied by Westinghouse Electric Supply Company in the heart of Portland's industrial district, at an estimated loss of $100,000.

SEATTLE AND PORTLAND FIRMS MERGE—Two companies, Associated Wood Products Co., Portland, and Triangle Truss Co., Seattle, both in the field of roof trusses and structural laminating, merge and will operate under the name of Associated Wood Products Company of the Northwest. The new company will operate sales offices in both Seattle and Portland covering the Northwest, with a staff of trained sales engineers.

UTAH

$10,500,000 PROJECT FOR UP&LCO — Plans have been made by Utah Power & Light Co. to build a second $10,500,000 steam-electric plant in Salt Lake City. The new plant, the third project in the utility's $61 million expansion program, will have a capacity of 75,000 kw. when completed in the fall of 1952, and will be an extension of the company's 66,000 kw. generating station now being built on the west bank of the Jordan River west of Salt Lake City at an estimated cost of $10,500,000. The latter plant is expected to be in operation by August 1951.

WASHINGTON

NEW FIRM BUYS JAM-JELL CO.—Food Manufacturers, Inc., Seattle, organizes to take over the 15-year-old Jam-Jell Company, packers of jams and jellies. Benjamin Boehm heads the group. The new company plans the same output as the original firm, plus a fruit-juice-pectin item called Jel-Juice, to help housewives make their own

jelly. The new item has been added, and will be sold through jobbers, in an effort to put the plant on a year-round basis.

FIRE RAZES BOAT BUILDING PLANTS—The plants of Western Boat Building and Marine Iron Works in Tacoma were virtually destroyed by fire recently, at an estimated damage of $500,000.

$1,700,000 STOCK PURCHASE BY GREAT NORTHERN—$1,700,000 will be paid to the Pacific Coast Railroad for its capital stock by Great Northern Railway. Pacific Coast Railroad owns about 30 miles of track from Seattle to Black Diamond, which will become the property of Great Northern if approval is obtained from the Interstate Commerce Commission.

WATERFRONT PROPERTY CHANGES HANDS—The Port of Seattle purchases six piers and various warehouse facilities on the city's central waterfront from the Pacific Coast Co. for a reported $1,800,000. The property involved includes piers 43, 45, 46, 47, 48 and 49. Pacific Coast Co. will lease back some of the property, and the Port of Seattle will lease the rest to other tenants.

$750,000 EXPANSION PROGRAM FOR SICK'S—Sick's Spokane Brewery, Inc., plans to construct new cellars and the latest type of refrigerating and handling equipment at its Spokane brewery at a cost of approximately $750,000.

LACEY PLYWOOD CO. IN OPERATION—Lacey Plywood Co. begins production of plywood in its new plant at Lacey, near Olympia. The old Bestline Corporation building was purchased by stockholders of the new company who, after considerable construction and renovation have more than doubled its original size in preparation for door and plywood manufacture.

PLYWOOD FIRM HAS PLANS — Mt. Baker Plywood, Inc., Bellingham, a cooperative plywood organization, begins plywood production and will also produce surfaced cedar siding. Plans are underway to set up production of 5,000,000 square feet of plywood per month, together with a cedar siding output of 40,000 feet per day. In addition, the company now has under operation the 20,000 foot daily capacity sawmill which will continue to operate in conjunction with the plywood plant.

EMPLOYMENT UPPED AT BOEING SEATTLE PLANT—Employment at Boeing Airplane Co.'s Seattle area plants passes the 20,000 mark, which represents a net increase of approximately 2,000 employees in the Seattle division since the beginning of Korean hostilities. The company plans to add approximately 500 engineers in this area before the end of the first quarter of 1951. In making the announcement, Boeing officially revealed the nature of the substantial additional work it received recently from the Air Force—it has been given authority to build additional quantities of C-97 Stratofreighter transports and B-50 Superfortress bombers in the Seattle area.

LONG-BELL PLANS NEW TYPE HARDBOARD—Long-Bell Lumber Co. plans to manufacture a new type hardboard product at its plant now under construction on a Longview site. It will have a 55-ton daily capacity and will employ approximately 70 men. The product will be made of dry waste now converted into fuel. Production is expected to get under way late this year or early in 1951.

$5,500,000 PLANT DEDICATED BY ALCOA—Aluminum Co. of America dedicates its new $5,500,000 rod, wire and cable plant at Vancouver. Full operation of the plant has begun, which has a capacity of 3 million pounds monthly. 200 men are now employed, operating in two shifts. It is expected 150 additional men will be added to the payroll soon, for a third shift. The new plant will serve territory West of the Mississippi.

WYOMING

$800,000 ABSORPTION-TYPE PLANT FOR MOUNTAIN FUEL — Construction has begun by Mountain Fuel Supply Co. on an $800,000 absorption-type plant in Uinta County, to remove liquid condensate and water from gas produced at the company's Church Buttes field in western Wyoming. The new unit will have a capacity of 100 million cubic feet of gas daily. The process to be used will make all gas produced at Church Buttes suitable for pipe line transmission.

ROCKY MOUNTAIN PIPELINE PROJECT—Five producing companies in the Wyoming area plan to build a pipe line to carry crude oil from the Rocky Mountain area to the Wood River area in Illinois. The proposed line will run from Worland, Wyoming to Wood River and will have a capacity of 70,000 barrels per day. Completion of the project is expected late in 1951.

WESTERNERS AT WORK

Arizona

GILBERT HALE named general plant foreman of the *Douglas Reduction Works, Phelps Dodge Corporation*, succeeding F. W. DENNY, who transfers to the company's Ajo Smelter, Arizona.

California

JOHN RHOADES, since 1946 on the engineering staff of *Hoffman Radio Corp.*, Los Angeles, promoted to chief engineer of the special apparatus division.

C. T. ATWOOD

CHARLES T. ATWOOD, former manager of *Lever Bros. Co.* plant in Edgewater, N. J., named manager of the firm's Los Angeles plant. Atwood will direct installation of processing machinery and training of a West Coast production force prior to the actual operation of the plant early next year. His staff includes: SIDNEY J. ANABLE, manufacturing superintendent; ROBERT E. SESSLER, plant engineer; GEORGE DUNCAN, industrial relations manager; RAY C. HATTER, production superintendent; EMIL L. KACER, office manager; and WILLIAM C. SKARDA, chief chemist.

HOMER ROSS, senior utilities engineer for the State Public Utilities Commission, on October 1 joins the staff of *California Manufacturers Association* as head of its fuel, power and water department. Ross succeeds GEORGE KINSMAN, who resigned as of September 15th, to become vice-president of *Florida Power & Light Co.*, Miami.

CLARENCE G. TAYLOR, Mt. View, named research director of *Western Highway Institute*. BERT TRASK, Boise, becomes associate director of the Institute with offices in San Francisco.

Truesdail Laboratories, Inc., 4101 No. Figueroa Street, Los Angeles 65, appoint ALVIN E. MAY assistant to the president. May, before joining this staff, was process engineer with Sharples Corp., Philadelphia, Pa.

Personnel changes at *Kaiser Steel Corporation*, Oakland, include: ATWOOD AUSTIN, formerly financial consultant for several years of the Kaiser companies, appointed vice-president and treasurer; C. F. BORDEN, general sales manager of Kaiser Steel since 1947, named vice-president in charge of sales; NORMAN KREY appointed manager, reduction plant operations, for Kaiser Aluminum & Chemical Corp., Oakland; and STANLEY B. WHITE becomes manager of all Kaiser Aluminum fabricating plant operations.

ORLO E. BROWN, JR., research metallurgist, joins the staff of the West Coast research and development laboratory of *Robertshaw-Fulton Controls Co.* in Los Angeles.

ROBERT S. BELL, formerly vice-president and assistant general manager of *Packard-Bell*, elected executive vice-president.

Four promotions in the production department of *General Petroleum Corp.*, Los Angeles, have been announced: C. C. GANDAUBERT, formerly superintendent of the production department's southern division, becomes general superintendent, supervising the three California divisions of the department at Vernon, Ventura, and Taft; E. V. WATTS, production superintendent of the southern division, advances to southern division superintendent; A. W. TITUS, senior production foreman of the Beaches area, replaces Watts as production superintendent of the southern division; and H. C. CARROTHERS, production foreman, becomes senior production foreman, replacing Titus at General Petroleum's Long Beach field office.

Thirty-five years on the job with *Caterpillar Tractor Co.* rates a diamond service pin for L. B. NEUMILLER, the firm's president. (He is second from the right, the man with the big smile.) C. L. BEST, chairman of the company's board of directors, is shown offering congratulations at a brief ceremony in San Leandro, California. A. T. BROWN (on the left) is executive vice president, and H. S. EBERHARD (right) is vice president.

WILLIAM WALLACE MEIN, JR., vice-president of Calaveras Cement Co., appointed to membership on the *Natural Resources Committee of the United States Chamber of Commerce.*

General Electric names DWIGHT E. MOORHEAD as manager of the San Jose Motor Divisions of the company's Small and Medium Motor Divisions. CARL J. ANDERSEN will continue as manager of the factory's manufacturing division, and L. A. MARCH will manage the engineering division.

WILLIAM LEONARD WOOD of San Leandro, veteran military and civilian air transport pilot, appointed general manager and director of operations for *Transocean Air Lines'* Arctic Circle exploratory flying. Transocean will fly an estimated 1,000,000 miles of bush operations for the Navy in connection with exploration and development of petroleum reserves near Point Barrow, Alaska.

Universal Window Co., Berkeley, names J. J. BARRY, former management engineer for C. F. Braun & Co., as plant production manager.

R. V. NICHOLAS becomes general superintendent of *Northern Redwood Lumber Co.*, Korbel, Humboldt County. Nicholas, associated for many years with Diamond Match Co. at Chico and Stirling City, and more recently with Pacific Lumber Co., Scotia, will have full charge of all sawmill, woods, and railroad operations.

W. A. NEWHOFF, vice-president of *Union Oil Co. of California* and manager of the company's central territory, retires after more than 30 years' service. He is succeeded by F. K. CALDWELL, manager of the northwest territory.

The following officers of *Industrial Plywood Corp.*, Willits, have been elected: HOLLIS J. NUNNELEY, president and general manager; GARTHE BROWN, vice-president and assistant secretary; CHARLES QUARNSTROM, secretary-treasurer; WILLIS E. SMITH, plant manager. JAMES O. GREEN is named office manager and assistant treasurer. Nunneley will continue as western division manager of Pacific Mutual Door Co., Tacoma, Wash.

J. O. CORNETTE becomes vice-president of finance and secretary-treasurer of *Pacific Airmotive Corp.*, Burbank. RAYMOND M. TONKS becomes general manager of the Burbank division, and J. WASKEY takes the position of works manager at Burbank.

PHILIP M. KLAUBER, assistant to the president of *Solar Aircraft Company*, San Diego, appointed acting manager of Solar's research division since LT. COL. JOHN V. LONG, assistant director of the division, was recently called to active duty with the National Guard.

MARION L. FORT becomes vice-president and general superintendent of *Pacific Lighting Gas Supply Co.*, and C. E. PEARMAN, vice-president and treasurer.

LEONARD L. BENDINGER succeeds EDWIN S. BRYANT as assistant superintendent of the *Long Beach Municipal Gas Department.*

LUDLOW SHONNARD, JR., becomes secretary and G. T. KELLY, treasurer of *Southern Counties Gas Co.*, replacing G. E. STELLER, retired secretary-treasurer of the company.

R .S. FULLER appointed manager of gas operations of *Pacific Gas & Electric Co.* F. F. DOYLE will be general superintendent of gas supply and control for the company.

ARTHUR AGNEW promoted from secretary-treasurer to general manager of *Sunset Line & Twine Co.*, whose offices are now located in Petaluma along with the main plant.

Coast Counties Gas & Electric Co., San Francisco, names ROBERT G. HESS to the newly-created position of assistant electric superintendent. BENJAMIN H. SEXAUER succeeds F. D. BEARDSLEY as electric engineer; Beardsley has been promoted to the new position of senior electric engineer.

McCulloch Motors, Los Angeles, promotes JEAN ST. HENRI and KENNETH MULKEY to posts as factory sales representatives.

GORDON TONGUE, formerly vice-president and general manager, elected president of *Northwestern Portland Cement Co.*, Northern Life Tower, Seattle. He succeeds C. T. W. HOLLISTER, resigned.

Colorado

J. BARDSWICH named general superintendent for *The Animas Minerals, Inc.*, Mancos, Colorado. That company resumed work at its Silverton holdings this summer, and is making regular shipments of ore from its Gold Dollar property in Montezuma County.

The Distinguished Achievement Medal of the *Colorado School of Mines* has been presented to FRANCIS A. THOMSON, a graduate of the Colorado School and president of the Montana School of Mines.

Idaho

C. R. RANNEY, mining engineer and geologist, named operating engineer and assistant to FRANK EICHELBERGER, general manager, for *Nancy Lee Mines, Inc.*, Kellogg. Ranney was formerly associated with the International Nickel Company in Canada, two Philippine gold mines, Phelps-Dodge Corporation, Arizona, and consulting engineer for a private prospecting organization in Mexico.

DONALD J. HART appointed Dean of the *School of Business Administration, University of Idaho*, Moscow.

New Mexico

L. H. DURIEZ, former manager of the Bayard Department of the *United States Smelting, Refining and Mining Company* at Bayard, appointed consulting mining engineer. Former superintendent of the Ophir Unit of the company at Ophir, Utah, J. T. LEWIS, JR., succeeds Duriez.

Oregon

BERT WILLIAMS named manager for *West Coast Terminals* at Portland, succeeding RALPH L. BOONE who resigned to become assistant to general manager of *Willamette Valley Lumber Co.*

PAUL D. CHRISTERSON named manager of the creosoting department of *Pope & Talbot, Inc.*, with offices in Portland, and treating plant at St. Helens, Oregon. Christerson was formerly sales engineer with the company; he succeeds CLYDE W. OSBORNE.

FRANK S. HECOX, general vice-president and treasurer of *Iron Fireman Manufacturing Company*, becomes chief executive officer of the company succeeding the late President T. H. BANFIELD, and will continue to serve as such until the next annual meeting.

Utah

ROBERT D. BRADFORD promoted from general manager of Utah operations of *American Smelting & Refining Co.* to general manager of the company's Western department, including all plants west of Omaha, Nebraska. W. G. ROUILLARD named manager of Garfield, Utah, plant.

Washington

DR. WILLIAM C. AITKENHEAD, for the past thirteen years in teaching and research at the Colorado School of Mines, Golden, assumes new duties as chief of the Mining Experiment Station of *Washington State College's Industrial Research Division*. Dr. Aitkenhead, an extractive metallurgist, will have three full-time research specialists and several part-time student assistants working under his supervision.

Kaiser Aluminum & Chemical Corp. appoints J. H. LINDEMUTH manager of the Mead and Tacoma reduction plants, succeeding NORMAN KREY. ARTHUR BRANSTEAD succeeds Lindemuth as manager of the Trentwood rolling mill.

Wyoming

G. E. SORENSEN named vice-president and director of *The Kemmerer Coal Company*, Frontier, Wyoming, and the *Gunn-Quealy Coal Company*, Rock Springs, Wyoming.

Aviation in Arizona

TUCSON is the setting on Oct. 26 and 27 for the fifth Arizona Aviation Conference, sponsored by the Tucson Chamber of Commerce. A registration of about 250 persons is expected.

Registration is in the evening of Oct. 25 and morning of the 26th on the Lounge floor of Pioneer Hotel. C. Edgar Goyette, manager of Tucson Chamber of Commerce, is the man to contact for further information.

Manufacturers Meet and Chew Over Mutual Problems

TIMELINESS and today's tempo is the keynote theme of this year's annual meeting of California Manufacturers Association, scheduled for October 19 at San Francisco's Fairmont Hotel.

Panel sessions will be held both morning and afternoon, with a list of featured speakers calculated to inspire your interest and participation. "Freight Traffic" and "Taxation" are morning topics, while "Fuel-Power-Water Problems" and "Government Procurement" highlight the afternoon.

"Freight Traffic" panel is composed of: the Hon. James K. Knudson, Commissioner, Interstate Commerce Commission, Washington, D. C.; H. E. Poulterer, vice president, Western Pacific Railroad; Robert W. Prescott, president, Flying Tiger Line, Inc.; Mel D. Savage, president, Savage Transportation Co.; E. J. Bradley, vice president, Matson Navigation Co.; Hon. Kenneth C. Potter, Commissioner, California Public Utilities Commission.

"Taxation" panel is made up of: John M. Phillips, member of Congress, 22nd California district; Merle H. Miller, Indianapolis, Indiana, who writes a monthly tax letter in *Fortune* magazine; F. M. Harless, Internal Revenue Agent in Charge (Income Tax), San Francisco; J. F. Thompson, Controller, Fibreboard Products, Inc.; and Sigvald Nielson, attorney, Pillsbury, Madison and Sutro.

First afternoon panel, "Fuel-Power-Water Problems" is staffed by: O. R. Doerr, vice president in charge of sales, Pacific Gas and Electric Co.; W. M. Jacobs, vice president, Southern California Gas Co.; Congressman Norris Poulson; George R. Prout, vice president of General Electric Co., and general manager of the Nucleonics Dept. at Richland, Washington.

"Government Procurement," the day's last panel, consists of: Frank L. Roberts, chairman, Military Renegotiation Policy and Review Board, Dept. of Defense, Washington, D. C.; Charles A. Richards, special assistant to Administrator for Small Business, Economic Cooperation Administration, Washington, D. C.; Brigadier General Phillips W. Smith, Chief, Procurement Division, Headquarters, Air Materiel Command, Wright Patterson Air Force Base, Dayton, Ohio.

Noon luncheon will feature a talk by George Prout on "Industry and Atomic Energy—the Prospects—the Future."

Benjamin F. Fairless, president of United States Steel Corp., will top off the day's activity with an address at the evening banquet.

Western TRADE WINDS

News about those who distribute and sell industrial equipment and materials

Personnel changes at the *B. F. Goodrich Company*, 5400 E. Olympic Blvd., Los Angeles 22, include: PAUL W. VAN ORDEN named industrial products merchandise manager; RICHARD G. COX appointed manager of original equipment sales; WILFRED A. SMITH becomes manager of molded, extruded, lathe cut and sponge sales; and GEORGE J. FISCHER named manager of "V" belts and packing sales. CHESTER F. CONNER, manager of industrial product sales, retires after forty years of service with the company.

J. O. BORST

The *Fuller Company* of Castasaqua, Pa., appoints *Western Gear Works*, Seattle, exclusive sales and service representatives for the Fuller line of rotary compressors and vacuum pumps. Territory which Western Gear will cover for Fuller includes Washington, Oregon, Idaho, Montana and Alaska. In southwestern Washington and Oregon, *Pacific Coast Geared Products*, Portland representatives of the Seattle company, will handle sales and service for Fuller compressors and pumps. Pacific-Western sales engineers will be assisted in Fuller compressor and pump contacts by J. O. BORST, recently appointed special member of the Pacific-Western engineering staff.

J. LUNDAHL

JOHN LUNDAHL appointed to the newly created position of sales representative-at-large by the *Detroit Diesel Engine Division of General Motors Corporation*. Lundahl will be on special assignment, and on occasion will work with Western distributors. He will also be available to assist in the engineering on special GM Diesel engine installations in the industrial field.

Lamson Corporation, Syracuse, New York, names H. H. FIELDER sales and service representative for the Mountain States area, with offices at 2144 Welton Street, Denver 5, Colorado. Telephone AComa 4861.

G. S. Marshall Company, representative for precision electronic components, moves to new location at 365 So. Fair Oaks Ave., Pasadena 1, California. JACK HACHTEN joins the sales engineering staff to cover southern California and New Mexico.

Erikson Manufacturing Company, 10936 E. Schmidt Road, El Monte, Calif., dealing in water wash paint spray booths, dust collecting systems, and industrial incinerators, are now operating from their own new manufacturing building. Telephone Forest 8-7858. H. ERIKSON, formerly vice-president and general manager of Acme Associates, Inc., elected president; S. A. GRATCYK, formerly with Acme Blower & Pipe Company, elected vice-president.

PHILIP LYONS resigns as sales manager of *PictSweet Foods, Inc.*

Ajax Flexible Coupling Co., Inc., appoints *Samson Sales Company*, 420 Market Street, San Francisco, California, its representative in Northern California for Ajax flexible couplings, Ajax Shaler-Shakers and Ajax Lo-Veyors. J. S. THURLOW, manager of the Thurlow Equipment division of G. Donald Bradley Company, 4402 White Building, Seattle, Washington, will cover the states of Washington, Oregon and Idaho on all Ajax products except flexible couplings.

Modernair Corporation appoints *Haskell Engineering and Supply Company*, 721 W. Broadway, Glendale, authorized stocking distributor for the territory including Southern California, Arizona and New Mexico. The company now represents the Linear line of pressure packings, the Adel line of hydraulic valves and pumps and the Simplex Engineering line of hydraulic equipment, as well as Modernair.

Keller Tool Company, manufacturers of pneumatic tools, hoists and motors, move offices to new quarters at 1053 W. 7th Street, Los Angeles.

WARREN *& Bailey Co.*, 350 S. Anderson St., Los Angeles, named distributors for Boston Woven Hose & Rubber Company.

RAY FELLOWS, assistant sales manager, *Wisconsin Motor Corp.*, was a recent visitor to the coast. While in the Bay Area he made his headquarters at *E. E. Richter & Son*, Emeryville, distributors for Wisconsin Motors Corp.

Diamond Chain Co., Inc., Indianapolis, Indiana, a division of THYS Co., name *Western Industrial Supply Co.*, 905 "G" Street, Sacramento, distributor in the Sacramento area.

R. W. ANDERSON, SR., for many years sales manager of the Washington Veneer Co., Olympia, Washington, appointed West Coast representative of *Gulf States Plywood Co.*, New Orleans, Louisiana, with headquarters at 928 Legion Way, Olympia.

Harry D. Utter Company, 65 Ninth Street, San Francisco 3, appointed manufacturer's representative for the Industrial Pneumatic Tool Division of *Aro Equipment Corporation*, Bryan, Ohio. Utter's territory includes all of northern California and all of Nevada. He also handles a line of air devices for making machine tools automatic supplied by Conapco, Inc., Los Angeles. Utter was associated for 23 years with the Independent Pneumatic Tool Company until the first of this year, when he branched out for himself. Telephone UNderhill 3-4870.

GEORGE BARR, consultant for the *General Electric Company's Federal & Marine Division* in San Francisco, retires after 43 years of service with the company.

J. D. NEWELL

Joseph T. Ryerson & Son, Inc., steel distributors, appoints JOHN D. NEWELL sales representative for San Diego and sourrounding area, and Arizona. Before joining Ryerson, Newell was associated with Lockheed Aircraft as a designer, and with Aerco Corporation and United Aircraft Products, both of Los Angeles, as a sales engineer.

R. G. HOLABIRD, district sales manager in San Francisco for *National Electric Products Corp.*, Torrance, Calif., officially represented the City of San Francisco on June 28 when 50 business leaders of that city participated in a Good Neighbor visit to Eureka, Calif.

JOHN PARKER appointed district manager of the Pacific Coast Area for *Braeburn Alloy Steel Corporation*, with headquarters at 1855 Industrial Street, Los Angeles 21, succeeding HAROLD OGDEN. G. REX CLAYTON, formerly of Northrop Aircraft, Inc., joins the staff of Braeburn as a field representative assisting Parker.

G. L. COBB

Soulé Steel Company, San Francisco, promotes GEORGE L. COBB to assistant general sales manager for the firm's coastwide operations. Cobb has been connected with the firm for the past sixteen years, and will directly assist E. B. McClure, vice-president and general sales manager. STANLEY SOULE', formerly in charge of special product sales, moves up to Cobb's former position as district sales manager for Northern California and Nevada.

Dana Jones Company, 756 South Broadway, Los Angeles 14, California, celebrates its 25th anniversary.

A. J. BRONOLD

Sterling Electric Motors, Inc., 5401 Anaheim - Telegraph Road, Los Angeles 22, California, names ALAN J. BRONOLD sales manager for Sterling's domestic and international sales organization, succeeding ALLEN ADAMS who will continue as an officer and secretary-treasurer of the company. Bronold formerly was associated with Vacuum Oil Company and Westinghouse Electric Corporation.

Pioneers, Inc., 2411 Grove Street, Oakland 12, California, triples its present Oakland manufacturing headquarters. New battery AD-X2 stations are located at 2411 Grove Street, Oakland 12, TW. 3-6044; 350 South Anteros Ave., Stockton, ST. 3-8269; 623 East Adams Street, Phoenix, Arizona, ARiz. 8-1172; 2508 Pacheco Blvd., Martinez, Calif., Martinez 1010; 116 W Street, Sacramento, Calif., Gilbert 2-5622; 462 L Street, Fresno, California, Fresno 2-7224; and Arcade Building, Aptos, Calif.

WHAT'S NEW IN LIGHTING?

Highlights of the Illuminating Engineers Society National Technical Conference in Pasadena, August 21-24

High Wattage Reflector Lamps

Recent availability of 96% silica glass under the trade name Vycor suggests a definite expansion in lamp applications where heat has hitherto been a problem. The operational temperature limit of Vycor is 800°C, its softening point over 1500°C and its thermal shock resistance increased by a factor of 8. Shallow reflector lamps rated at 1250, 1500 and 2100 watts are now available as surface elements for electric ranges, and similar applications in industry.

R. J. Slauer, Sylvania Electric Products, Inc.

New Photochemical Lamps

New photochemical lamps have been developed using a new glass and new electrodes, which are better adapted to the operating conditions of modern whiteprint machines. Higher ultraviolet output at lower cost makes it practical to use these lamps as a new tool in many industries.

L. E. Barnes, Westinghouse Electric Corporation.

Color Corrected Mercury Lamps

The characteristic blue-green color of light from mercury lamps has been a deterrent to their greater use in industry, both because of color distortion of the work and surroundings, and because of the appearance of the workers. A new 400-watt mercury lamp is now available with a phosphor coating inside the outer envelope, which is activated by the ultra violet from the mercury arc to add red to the spectrum. It is anticipated that this new lamp will find considerable use in medium and high bay industrial plants.

E. W. Beggs, Westinghouse Electric Corporation.

Muscle Action Potentials in Industry

Effects of illumination level on acuity, speed of vision and productivity are well known, but there is need for a method of measuring the physiological cost of seeing; that is, whatever we "use up" within our bodies when we see. Such an approach has been developed at Tufts College in connection with an I.E.S. Research Project. Electrodes placed on the forehead just above the eyes pick up tiny electrical voltages at a mixture of frequencies to serve as an "alertness indicator," and definitely show a higher tension level for workers under low levels of illumination.

Willard Allphin, Sylvania Electric Products, Inc.

Free Course in Water Treatment

A free basic course in industrial boiler water treatment will be given in Los Angeles and San Francisco this month by Dr. R. C. Ulmer, technical director of the power chemicals division of E. F. Drew & Co., Inc., of New York.

The course is divided into two discussion periods of two hours each, the first entitled "Fundamental Chemistry; properties of water and its impurities" and "Water problems and correction" and the second "Other plant problems; steam and condensate lines, heat transfer equipment, service water lines, air conditioning equipment, evaporations, etc.," and "Methods and techniques of conducting water test: application and interpretation of results." Showing of sound motion picture "A study of water" filmed in the Drew Laboratories.

Lecturers will be Dr. Ulmer, J. F. Churchill and R. A. Messineo. Los Angeles meetings will be held Oct. 17 and 24, in Embassy Auditorium, North Hall, 839 S. Grand Ave.; San Francisco Oct. 19 and 26, in Druids' Hall, 44 Page St.

LAST month we published an article entitled "Contract Deadline Trimmed by Simple Jigs and Fixtures." It is a good story telling how a manufacturing plant used their existing facilities, with shop-made modifications, to beat a contract time limits and still make money.

This story has evoked significant interest: so much so, in fact, that we discover we neglected to tell you whose plant it was. But our readers wouldn't let us get by with it. So to cut down on our incoming mail, and at the same time tell all, that plant is the Seidelhuber Iron and Bronze Works, Inc., 3693 Duwamish, Seattle, Washington. Our apologies to S.I.B.W.

Course in Methods-Time Measurement Offered

For the first time on the Pacific Coast, practical training is soon to be offered in San Francisco by engineers experienced in the new techniques of methods-time measurement. This recently perfected tool of industrial engineering is now being used by several firms on the Pacific Coast and by over 150 well-known concerns throughout the United States.

The School of Management of Golden Gate College is announcing another in its series of management training institutes for key employees and executives to be devoted to this subject, believing that MTM will be particularly helpful to many western industrial enterprises in solving the critical manpower problems of national emergency mobilization.

Originated primarily as a motion analysis device for setting standards, MTM has been gradually developed by its users to the place where it is applied to the solution of numerous production problems. Among its applications are product design changes, planning new layouts, improving of simplifying methods, estimating labor requirements or costs, and as an aid in selecting new equipment.

Because the stop-watch is not used, or is kept in the background for checking purposes, organized labor has tended to accept standards established by these methods more readily than has sometimes been the case with conventional time and motion study. Union leaders have differed in their opinions on this subject, as on other matters, but the general trend has been favorable.

The School of Management will open a three-weeks Institute on this subject, five 7-hour days each week, on November 27. Instruction will be given by the staff of Methods Engineering Council of Pittsburgh, Pennsylvania. H. B. Maynard, President of the Council, is one of the engineers who originated Methods-Time Measurement and spent a number of years in large eastern plants standardizing the data and applying the new techniques.

Following three weeks of intensive class-room training, a week of in-plant training will be offered to participating firms where the aid of an experienced engineer is desired in establishing the new methods.

Further details may be secured from Dr. Roy W. Kelly, Director of Institutes, School of Management, Golden Gate College, 537 Market Street, San Francisco.

Space is sold as advertisers' inches. All advertisements in this section are ⅛ in. short of contracted space to allow for borders and composition.

CLASSIFIED SECTION

Rates are $5.50 a column inch. Copy should be sent in by the 10th of preceding month if proofs are required; by the 15th if no proofs are required.

ASSOCIATIONS ELECT

J. C. BROWN

American Society of Mechanical Engineers: J. CALVIN BROWN, Attorney, 704 South Spring St., Los Angeles, 1951 president, succeeding JAMES D. CUNNINGHAM, Republic Flow Meters Co., Chicago.

The Reps, of Radio Parts Manufacturers, Inc.: DR. RALPH L. POWER, 767 Castelar Street, Los Angeles 12, elected executive secretary - treasurer, succeeding LEWIS E. SPERRY, resigned.

DR. R. L. POWER

Furniture Manufacturers Association of Southern California: FRANK A. GREGG, general traffic manager.

Southern California Meter Association: James E. Adams, Signal Oil and Gas Company, president.

Association of Better Business Bureaus: W. G. PAUL, Los Angeles Better Business Bureau and Los Angeles Stock Exchange, to board of governors to represent District VI.

Cast Magnesium Aircraft Wings

A project of far-reaching significance is starting at Northrop, which has been commissioned by the Air Force to experiment with casting of entire airplane wings from magnesium. The company plans first to cast the outer half of a wing in a single piece, then test its strength and mechanical properties in comparison with an identical wing made from aluminum sheet by conventional fabrication methods. Northrop produced the world's first all-magnesium plane, the XP-56, in 1943, using Heliarc welding to join the lightweight sheets. It also built a series of experimental buzz bombs whose center wing section was cast from magnesium.

INDEX TO ADVERTISERS IN THIS ISSUE

American Felt makes possible 99.9% filtration efficiency

AEROTURN Dust Collector, Series 18, with part of housing removed to show felt filters and automatic cleaning device. Manufactured under patent license from H. J. Hersey, Jr.

TOUGH, durable American Filter Felt which is resistant to flame and certain acid and alkali conditions is featured in Aeroturn Dust Collectors. These collectors provide 99.9% efficiency, due to the positive filtration action of the felt, a product of advanced research work and felt manufacturing know-how. The Turner & Haws Engineering Co., Inc., West Roxbury 32, Mass., maker of the Aeroturn, states that: "Basically, the exceptional performance of Aeroturn Collectors is made possible by the high-quality specialized filter felts made by your company." Another Aeroturn feature is uninterrupted operation made possible by the reverse-air-jet filter bag blow ring. Increase of static pressure puts this into operation automatically. This, plus the high filtering rate of the felt, makes an Aeroturn installation smaller and lighter for a given capacity.... The success of this dust collector is an example of the results obtainable through close cooperation between a manufacturer and his suppliers. American works closely with Aeroturn, and will gladly collaborate with you on filtration or any other application for felt. Write for Data Sheet No. 15, "Felt and Filtration," complete with technical information and illustrative samples.

American Felt Company
TRADE MARK

QUICK DELIVERY

Stocks of American Felt are maintained in San Francisco, Los Angeles, Portland and Seattle, for the convenience of Pacific Coast customers. For Quotations, Samples and Data Sheets fill in coupon below.

A. B. BOYD CO.
1235 Howard St.,
San Francisco 3, Calif.

Please send Data Sheet No.

Name .....

Company .....

Address .....

City .....

State .....

POSTMASTER:
If addressee has removed, notify Western Industry on Form 3547 postage for which is guaranteed. Western Industry, 609 Mission Street, San Francisco 5, Calif.

SEC. 34.64, P. L. & R.
U. S. POSTAGE
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San Francisco, Calif.
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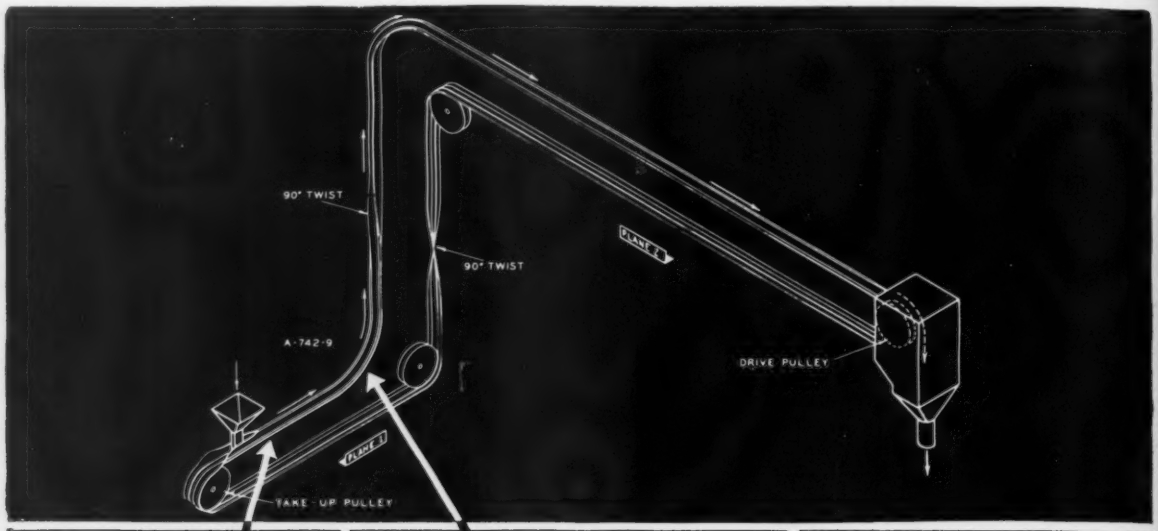
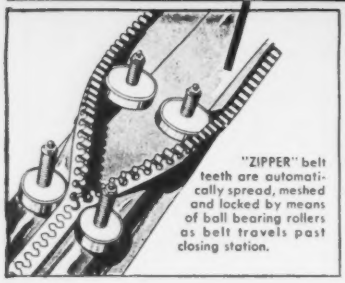
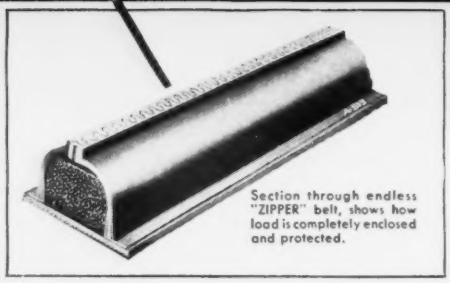
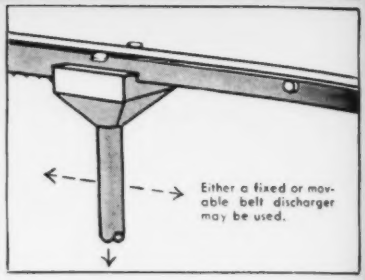




"ZIPPER" belt teeth are automatically spread, meshed and locked by means of ball bearing rollers as belt travels past closing station.



Section through endless "ZIPPER" belt, shows how load is completely enclosed and protected.



Either a fixed or movable belt discharger may be used.

"ZIPPER"—Has One "RUBBER MUSCLE"

—As Flexible as a Hose!

"ZIPPER"—the new conveyor-elevator developed by S-A engineers, does the work of several conventional conveyor-elevators. But, with its one continuous "rubber muscle", "Zipper" does the same work, in less space, and with the elimination of extra drives, transfer spouts, casing, breakage and dust.

"Zipper" conveys horizontally, vertically or on inclines—in any direction and in any plane. Sidewalls are closed around the load to eliminate spillage and escape of dust as well as contamination from outside. "Zipper" moves around obstructions—carries its load gently without breakage or segregation.

Belt opens for complete discharge and cleaning when necessary. Speeds may be regulated up to 200 FPM. Pulverized, granular, lumps or flaky materials are particularly suited to "Zipper" application. This system is not only "flexible" in operation but also in its adaptability to many applications—probably including some problem of yours.

Ask for recommendations of S-A engineers on how new "Zipper" can serve you. There's no obligation so write today.

FOR EXAMPLE AT MANSFIELD SANITARY POTTERY, INC. PERRYSVILLE, OHIO

1" dry ball clay and other fine materials are drawn from storage silos and delivered to cylindrical underground dump hopper equipped with an S-A two-stage circular bin discharger. Materials are fed to "ZIPPER" belt conveyor which moves 32 feet upward, and makes a 90-degree turn to processing building. Over 95 feet of horizontal run over 5 mixing tubs, movable belt discharger can be spotted over any mixer. This S-A "ZIPPER" system fitted into existing layout without structural alterations.

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